NOTICE TO BIDDERS
ADDENDUM #1
Bid #CM-17-18-01-NEC-01 B: North Education Center Site Utilities and Science Modular Plumbing Project
AND
Bid #CM-17-18-01-NEC-01 C: North Education Center Site and Science Modular Bldg. Electrical Project

Palomar Community College District

The following changes, additions, deletions, clarifications or corrections shall become part of the Bid & Contract Documents for the above listed project. This Addendum #1 forms a part of the contract document and modifies the original bidding documents. Acknowledge receipt of Addendum #1 in the space provided on the bid form. Failure to do so may subject bidder to disqualification.

CHANGE TO BID DOCUMENTS

For both CM-17-18-01-NEC-01-B and CM-17-18-01-NEC-01-C:

1) NOTICE TO CONTRACTOR CALLING FOR BIDS, **Estimated Start Date is revised to December 20, 2017.**
AND
2) SPECIFICATIONS – SPECIAL CONDITIONS, 1a. anticipated date of award is revised to **December 12, 2017** and 1b. anticipated start date is revised to **December 20, 2017**.

PRE-BID REQUESTS FOR INFORMATION QUESTIONS AND RESPONSES

(1) QUESTION: What type of PVC C900 will be used on this project: CL235 or CL265, DR14 or DR18?

RESPONSE: Masson RD 11/7/17 – DR-18 per private water system analysis report prepared by Wilson Engineering dated 8/31/17.

(2) QUESTION: Are water services 6" or 2"?

RESPONSE: Masson RD 11/7/17- All pipes shown are 6". Services are not shown and contractor should refer to the plumbing plans for sizes.

(3) QUESTION: Is there a deflection standard for the sewer pipe radius?

RESPONSE: Masson RD 11/7/17 – Manufacturers recommendation should be followed. For example, JM Eagle Gravity Sewer SDR 35 publication recommends a minimum radius for 8" SDR 35 as 200' accomplished through longitudinal bending of the pipe and not deflection of the joints.

(4) QUESTION: The Prime Trade Contractors have not been involved with the design or permit process, it is unreasonable to assume what the cost or quantity of permits that will be required. Please provide a list of any permits that will be required, the Local Authorities that will be required to be contacted along with the costs that will be incurred. (Spec: 09000 [2.0.16])

RESPONSE: DL 11.7.17 There are no permits required for either scope NEC-01-B or NEC-01-C

(5) QUESTION: During the Initial Preconstruction it was discussed to limit the hauling of stockpiled spoil to the far south end and knock down and spread out, Compaction would not be required. Please confirm this is correct which would differ from paragraph 3.11. (Spec: 09000 Part 3 Bid Package Division 33 Exterior improvements, Paragraph 3.11)

RESPONSE: DL 11.7.17 After reconsideration, compaction of spoils to 90% IS required Masson RD 11/7/17 - Supplied Specification should be followed.

(6) Page C3.7 calls for the sewer material to be 6" PVC C-900 section 33 31 00 2.01 B, calls for the material to be SDR 35. SDR 35 is a sewer type material. Please confirm which is correct. If C900 is correct please detail out how the corresponding fittings are to be adapted (drawing: C3-7 Sewer table; Spec: 33 31 00 2.01)

RESPONSE: Masson RD 11/7/17 – Private sewer pipe is to be SDR 35 DR 18. Table will be revised on C3.7.

(7) QUESTION: Please review the attached pages and confirm the highlighted sewer is existing see sheets C1.3 and C1.4 and only the sewer shown upstream of man hole S-5 Station 12+05.52 is new and a part of this scope. See Sheet C3.3 (drawing C1.3 and C1.4 and C3.3)

RESPONSE: Masson RD 11/7/17 - This is correct. MH s-5 and sewer in Palomar Drive is not part of this scope and will be installed by others. [REF Addendum 1 Attachment A]

(8) QUESTION: Please provide location from where the water is to be provided along with a routing, termination location material to be used. Will this line need to be chlorinated? See Paragraph 3.31 (Spec: 09000 Part 3 Bid Package Division 33 Exterior improvements, Paragraph 3.31)

RESPONSE: DL 11.7.17 This bid package shall assume 200LF of 3/4" water lines consistent with specifications for other water services, along with 4 points of connection to vending machines, drinking fountains, or other services. Location and routing TBD.

(9) QUESTION: Request for Clarification, sheet E1.3 has notes directing this contractor to install conduit raceway for the gear and panel feeds, with wire being installed and termination being done under work contract A#04-116581. (Ref. Sheet E1.3 and E5.1)

a. Is this correct for this bid package?

RESPONSE: JF JCE 11/7/17 Yes

b. How is the other contractor to know if we install conduits for copper wiring or Aluminum wire? Both copper and aluminum wiring is acceptable.

RESPONSE: JF JCE 11/7/17 conduit sizing is the same for either copper or aluminum reference feeder schedule on sheet E5.1

c. Just asking for clarification on Division # 27 and Division #28, 28 10 00, 28 20 00 & 28 30 00 are to be bid separate on separate date?

RESPONSE: DL 11.7.17 Complete site and interior fire alarm system is included in NEC-01-C. All required site and interior infrastructure/backbone (only) for the referenced specifications for communication, access control, security, and video is included in NEC-01-C. 15 Classroom modulars in Phase 3 will have all in-wall infrastructure completed BY OTHERS at the factory during

manufacture. All wiring, cabling, fiber, hardware, and devices for communication, access control, security, and video will be bid separately on a separate date.

d. Testing specification 26 90 90, which bid package is to do acceptance testing, coordination sturdy and Arc-Flash test?

RESPONSE: JF JCE 11/7/17 Package A#04-116580 DL 11.7.17 Package A#04-116580 is Phase 2, so all scope in question is to be completed by bid NEC-01-C.

(10) QUESTION: Please provide direction where the down stream piping for the Gas, Lab Air, Lab Vacuum is to be installed, Below Grade or Above Grade. If it to be installed above grade please provide a location on where it is to be installed. (Drawings P1.01)

RESPONSE: JDM P2S 11/7/17 All site gas, lab air, and lab vacuum on P1.01 are to be installed below grade, with the exception of the gas regulator and EQV assembly and connections to the compressor and vacuum, which are above grade. The piping changes from below grade to underfloor within the modular footprint.

(11) QUESTION: Question is would Edwards fire alarm system be acceptable, being this is brand new facility**?** **(**Ref: Sheets: Specification section 28 30 00 Pg #6; Comments: Specifications call for Simplex, notifier or FCI)

RESPONSE: JF JCE 11/7/17 Yes, as long as the installing contractor meets all the requirements listed in section 283000 1.7 Edwards is an acceptable alternative.

(12) QUESTION: Request for Clarification, sheet E1.7 detail #9 shows what appears to be fencing around main electrical switch board. Who is to install this fencing? (Ref: Sheets E1.7 detail #9-E1.7)

RESPONSE: DL 11.7.17 Fencing will be BY OTHERS in the forthcoming Paving/Hardscape/Site Improvements bid package.

(13) QUESTION: Also at pre-bid meeting on 10-31-17 electrical engineer stated that the conductors we to be terminated by this bid package contractor. Documents state the feeders and terminations are to be by others? What is the clarification on this issue? (Ref: Sheets E1.7 detail #9-E1.7)

RESPONSE: JF JCE 11/8/17 The electrical contractor is responsible for installing all conduits and conductors, the documents included some work in each phase but at the completion of all work everything should be included.

(14) QUESTION: There are two manhole that are to be installed. Please confirm that the details on C3.8, S5 and S7 need to be followed and will take precedence over the narrative in 33 05 16.

RESPONSE: Masson RD 11/8/17 – Plans supersede specs in all cases.

(15) QUESTION: Please also confirm whether the following will or will not be required:
Air Test for Sewer Manholes *Masson RD 11/8/17- No*
Interior Coatings *Masson RD 11/8/17- No*
Exterior Coatings as indicated in section 33 05 16 3.3G *Masson RD 11/8/17- Yes*

RESPONSE: Masson RD 11/8/17 Note also, the Sanitary Sewer Spec No. 33-31-00 indicates in section 1.03 "Regulatory Requirements" to follow Green Book Sec. 306. This indicates in section 306-7.8.2.1 (b) that a water infiltration or exfiltration test is required. This site warrants

(1) infiltration test in areas where pipe is expected to be in ground water and (2) an air pressure test will be allowed in areas where the pipe will not be in groundwater. The determination of which test is to be performed and evaluation of the tests will be the responsibility of the onsite DSA construction Inspector.

ADDITIONAL INFORMATION AND CLARIFICATIONS

(16) For bid NEC-01C, Document 0900 – DIVISION OF WORK item 3.43 please see attached Addendum1 Attachment B for power to future flow metering in existing manholes. Provide 1"conduit, 2#10, 1#12 ground to connect metering equipment located in 2 civil manholes, extend conduit and wiring to Power Panel "PPB" on one dedicated circuit.

(17) Bid Package NEC-01C should INCLUDE all provisions to have electrical switchgear onsite by **February 12, 2018.**

(18) Reference Addendum 1 Attachment C for new schematic site gas routing to point of connection at Horse Ranch Creek Road, including new location of meter and regulator (meter and regulator by SDGE). All scope from meter onto the site is part of Bid Package NEC-01B. Reference Addendum 1 Attachment D for latest SDGE gas trenching requirements. Parameters for site gas utility trenching within campus property line are as follows:

1. Only dry utilities (power, telephone, CATV, street lighting) are allowed in joint trench with natural gas.
2. No wet utilities (water/sewer/landscaping) are allowed in a joint trench.
3. 36" to 60" of undisturbed earth must separate a dry utility trench from a wet utility trench.
4. Power/electric-within the joint trench, a minimum of 12 inches of separation in all directions.
5. CATV, telephone and other dry substructures – within the joint trench, a minimum of 12 inches of separation in all directions.
6. 30" minimum cover on private property.
7. 32" minimum cover for 4" and greater pipe.

(19) Bid Package NEC-01C shall include for lighting fixture types A, A2, A3, A4, C and D all necessary components for a complete wireless lighting management control system including

a. Sensor modules mounted to each fixture
b. Wireless sensor manager or Gateways
c. Cellular antenna for smartphone support and all software and licensing
d. All components to provide Scheduled on/off and scheduled dimming control
e. Individual fixture addressing

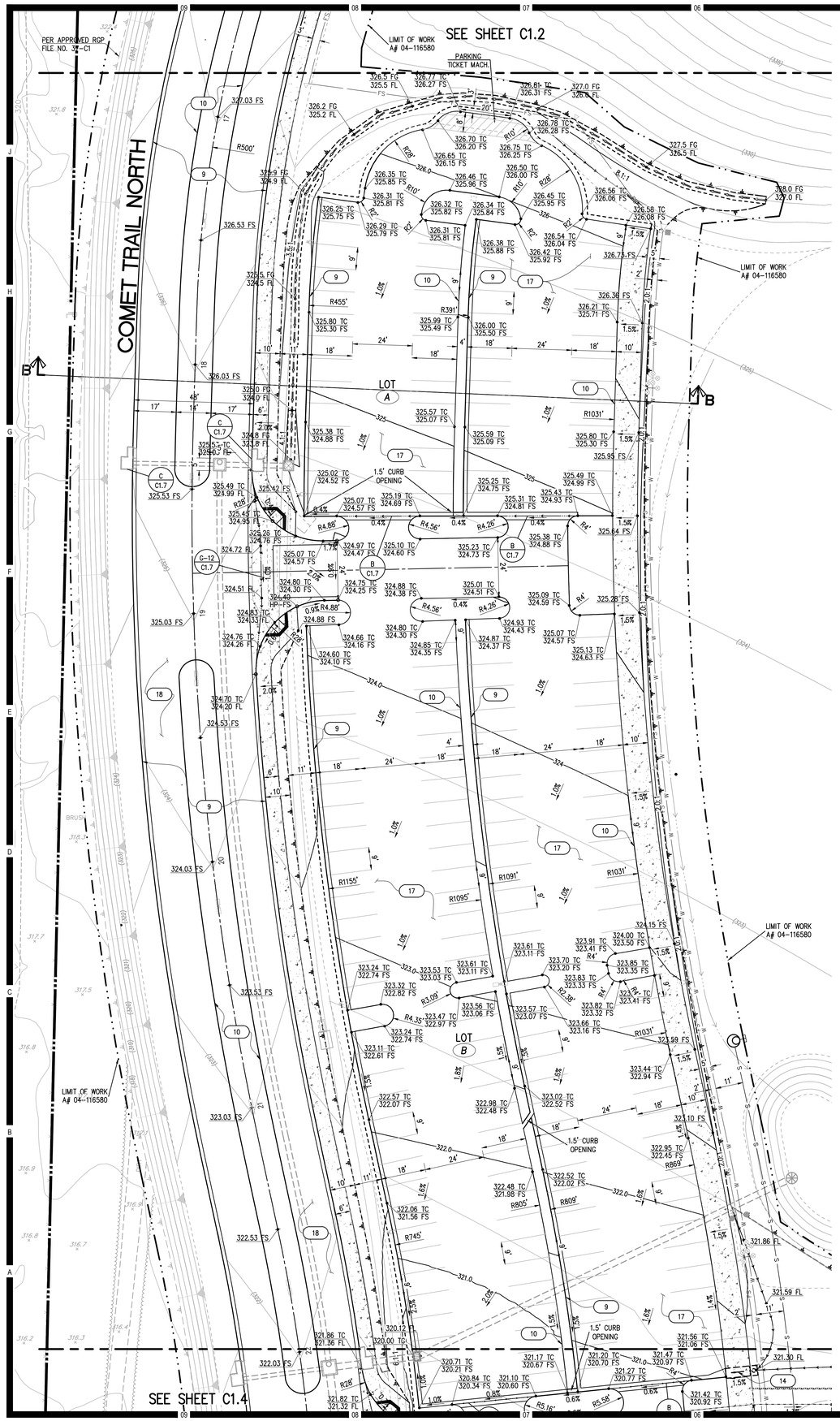
(20) Addendum 1 Attachment E includes additional information and details from SDGE.

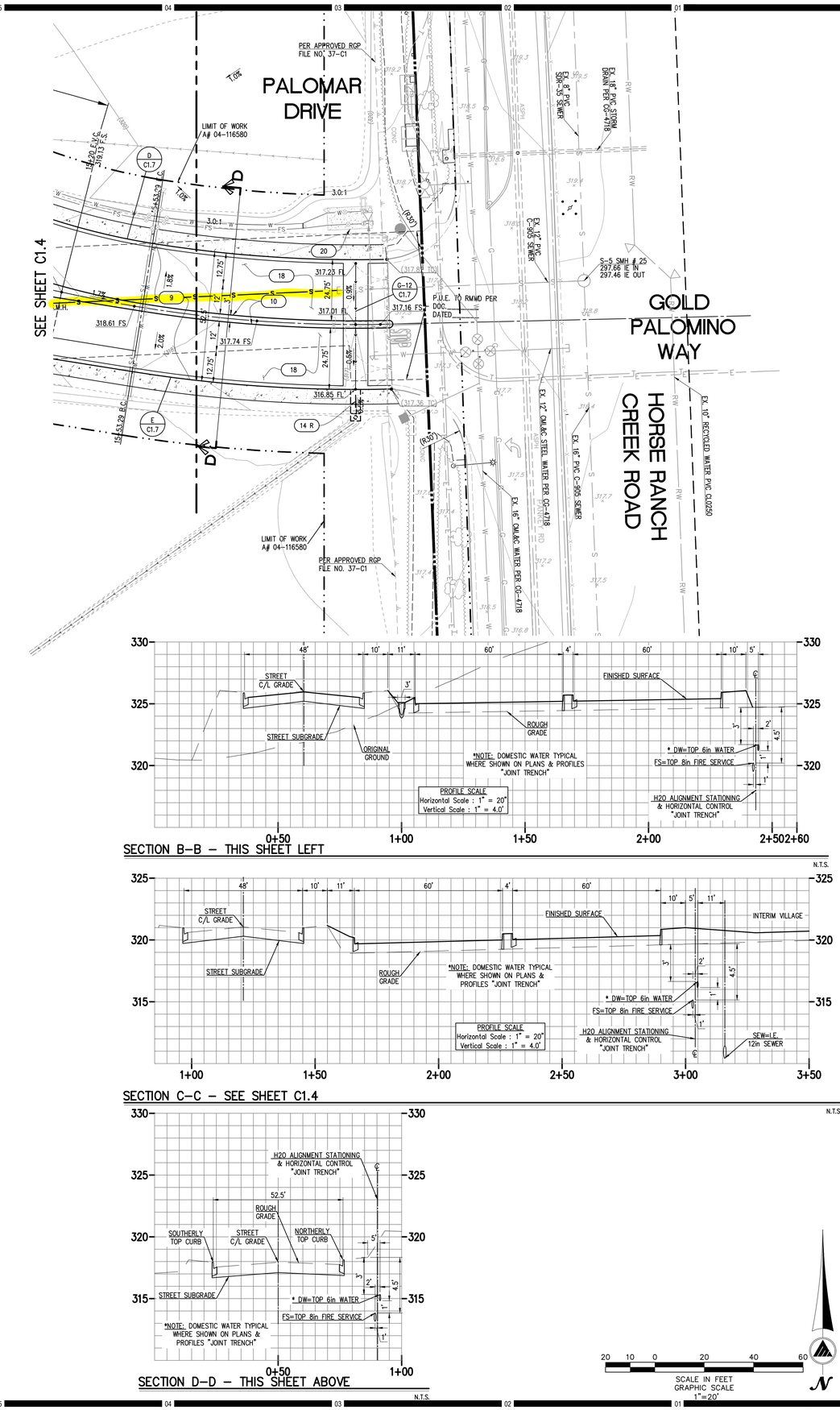
END OF ADDENDUM #1

Date Issued: November 9, 2017

Carmen Coniglio
Director
Fiscal Services
Palomar Community College

Ron Ballesteros-Perez, Assistant Superintendent
Vice President Finance & Administrative Services
Palomar Community College District





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KEYNOTES LEGEND

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SEE SHT C3.8 FOR DETAILS
SEE SHT C1.7 & C1.8 FOR DETAILS

NOTES

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2. BENCHMARK USED IS SDGPS 3 FROM COUNTY OF SAN DIEGO CONTROL DATA SHEET ELV.=306.01 NAV29
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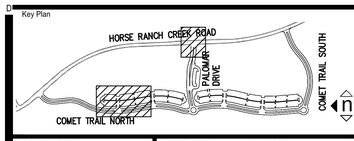
Key Plan



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Project Title

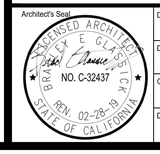
PALOMAR COLLEGE
Learning for Success

North Education Center
Palomar College
35090 Horse Ranch Creek Road
Fallbrook, CA 92028

No.	Description	Date
	DSA SUBMITAL - PHASE II	10/06/2017

Drawing Title:
FINE GRADING & DRAINAGE PLAN

Architect's Seal



Designed: RD / DAM	Project No. 5015019-102 MAI PN: 16249
Drawn: DAM	Scale: AS NOTED
QAQC RD	Drawing No. C1.3
Date: 10/06/2017	

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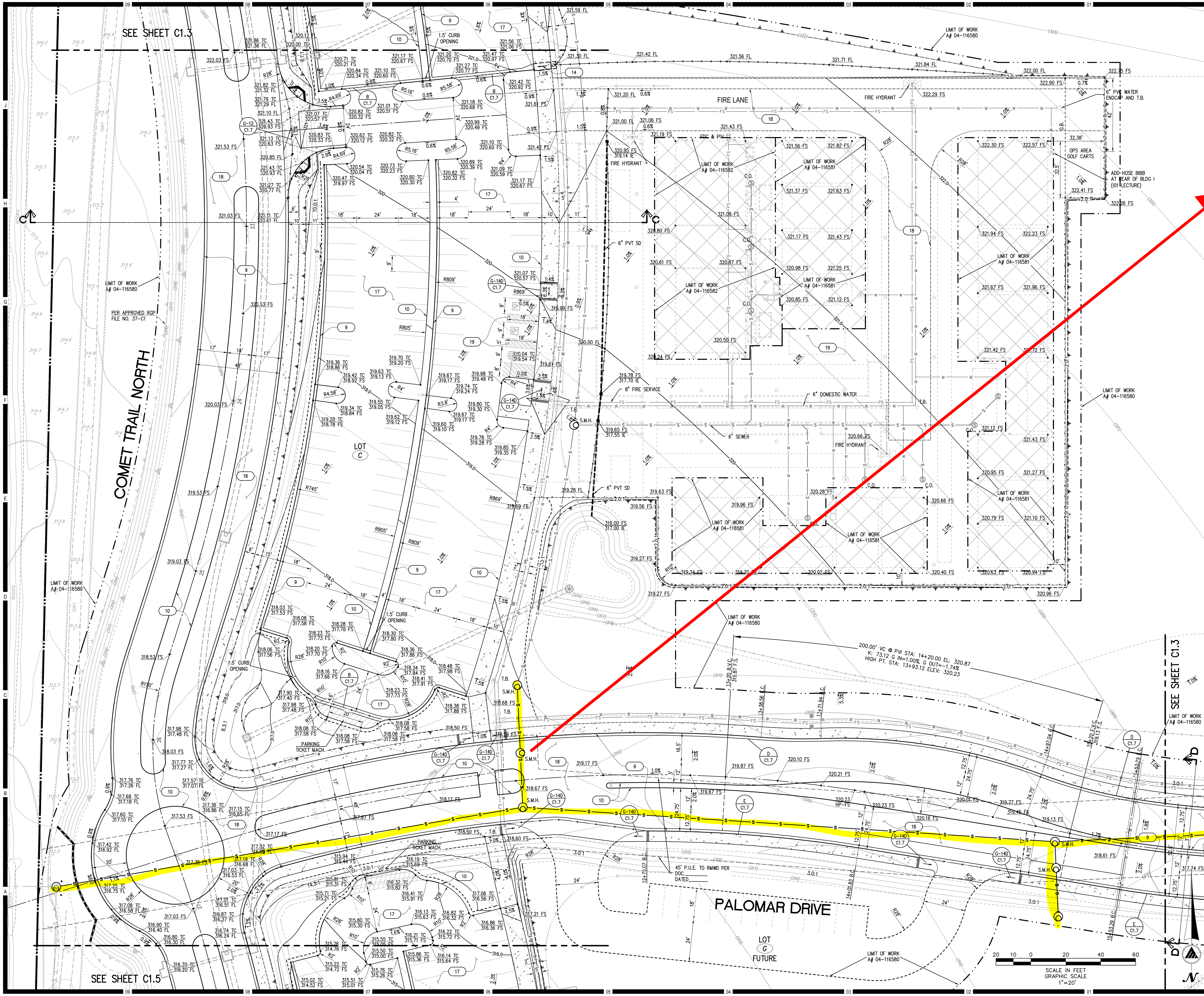

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Key Plan

HORSE RANCH CREEK ROAD
COMET TRAIL NORTH
COMET TRAIL SOUTH
PALOMAR DRIVE

Consultant Seal

REGISTERED PROFESSIONAL ENGINEER ROBERT D'AMARO No. C081699 Exp. 03/31/18 CIVIL STATE OF CALIFORNIA

Agency Approval FILE NO.

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Palomar College
PALOMAR COLLEGE Learning for Success
35090 Horse Ranch Creek Road
Fallbrook, CA 92028

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	DSA SUBMITAL - PHASE II	10/06/2017

Drawing Title:

FINE GRADING & DRAINAGE PLAN

Architect's Seal

LICENSED ARCHITECT BRADLEY E GLASSICK NO. C-32437 REN. 02-28-19 STATE OF CALIFORNIA

Designed: RD / DAM	Project No. 5015019-102 MAI PN: 16249	
Drawn: DAM	Scale: AS NOTED	
QAQC RD	Drawing No. C1.4	
Date: 10/06/2017		

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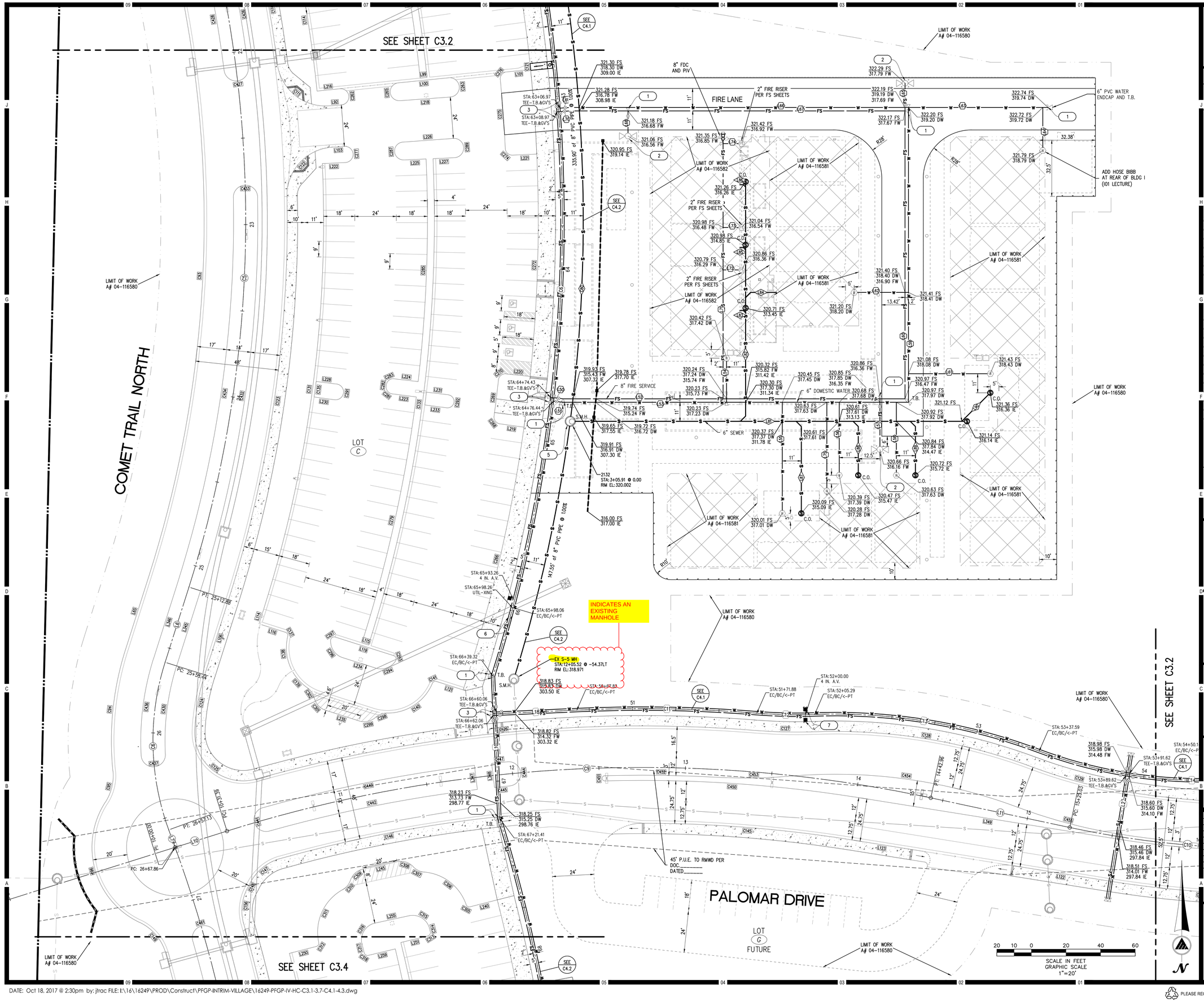

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SEE SHT C1.7 & C1.8 FOR DETAILS

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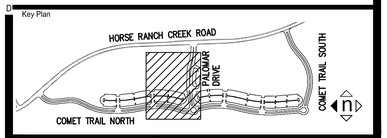

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REGISTERED PROFESSIONAL ENGINEER ROBERT D. AMATO No. C081699 Exp. 03/31/18 CIVIL STATE OF CALIFORNIA

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No.	Description	Date
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Drawing Title:

HORIZONTAL CONTROL & UTILITY PLANS

Architect's Seal

ARCHITECT FRANK E GLASTETTER NO. C-32437 REN. 02-28-19 STATE OF CALIFORNIA

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Drawn:	DAM		MAI PN: 16249
QAQC	RD	Scale:	AS NOTED
Date:	10/06/2017	Drawing No.	C3.3

DATE: Oct 18, 2017 @ 2:30pm by: jtrac FILE: I:\16\16249\PROD\Construct\PFGP-INTRIM-VILLAGE\16249-PFGP-IV-HC-C3.1-3.7-C4.1-4.3.dwg

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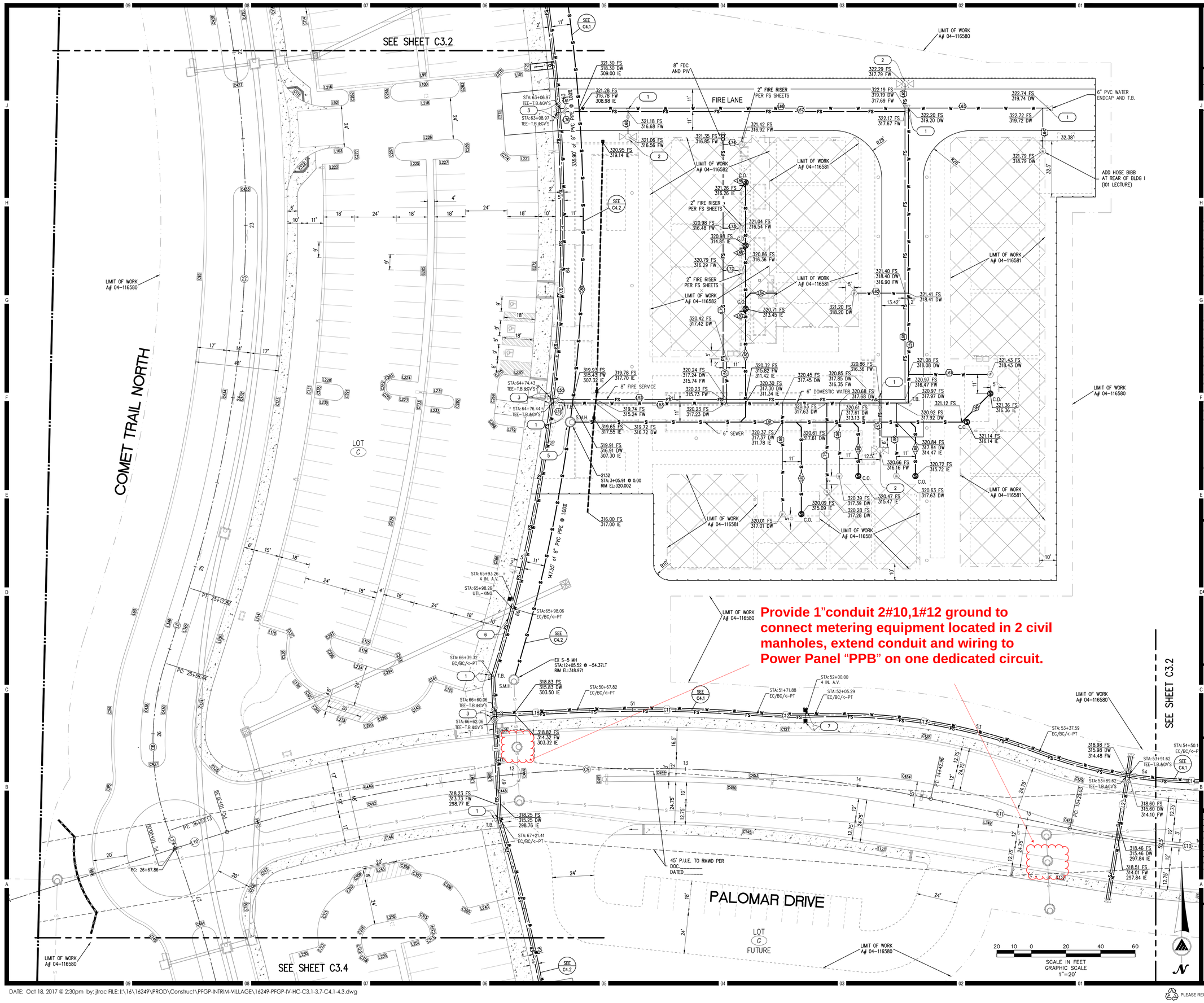

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9		6" C&G PER SDRSD G-2 TYPE G
10		6" CURB ONLY PER SDRSD G-1
11		6" AC BERM PER SDRSD G-5 TYPE A
12		6" SIDEWALK PER SDRSD G-7
13		CURB RAMP PER SDRSD G-27 TYPE A
14		CURB OUTLET PER SDRSD D-25
15		CROSS GUTTER PER SDRSD G-12
16		BROW DITCH PER SDRSD D-75 TYPE A
17		CONSTRUCT 3" AC OVER 6" AB
18		CONSTRUCT 4" AC OVER 7" AB
19		SEE ARCHITECTS PLANS
20		DW BACKFLOW PREVENTER RMWD W-2A FW BACKFLOW PREVENTER DETAIL ON C4.3
	318.89 FS 315.97 DW 314.90 FW	FINISHED SURFACE ELEV.
	307.30 SWR	DOMESTIC WATER/FIRE SERVICE TP ELEV. SEWER INVERT ELEV.
	X / Y	X = DETAIL # Y = SHEET #

SEE SHT C1.7 & C1.8 FOR DETAILS

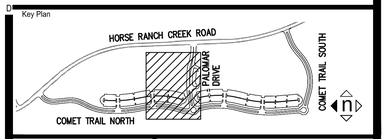
SEE SHT C3.8 FOR DETAILS

NOTES

1. CONTOURS AND ELEVATIONS SHOWN IN FUTURE ROADS ARE TO FINISHED GRADE. SUB-GRADE PER SOILS REPORT AND STREET SECTION ON PAGE 1.
2. BENCHMARK USED IS SDCPS 3 FROM COUNTY OF SAN DIEGO CONTROL DATA SHEET ELV.=306.01 NAV29
3. WDID # 9 37C380545 .

Consultant
MASSON & ASSOCIATES, INC.
Planning ▲ Engineering ▲ Surveying
Solved.
200 E. Washington Ave., Suite 200
Escondido, CA 92025
O. 760.741.3570
F. 760.741.1786
www.masson-assoc.com

Key Plan



Consultant Seal

Agency Approval FILE NO._____

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APPL. 04-116580
ACS_____ FLS_____ SSS_____
DATE_____

Project Title

PALOMAR COLLEGE Learning for Success

North Education Center
Palomar College
35090 Horse Ranch Creek Road
Fallbrook, CA 92028

No.	Description	Date
	DSA SUBMITAL - PHASE II	10/06/2017

Drawing Title:
HORIZONTAL CONTROL & UTILITY PLANS

Architect's Seal

Designed:	RD / DAM	Project No.	5015019-102
			MAI PN: 16249
Drawn:	DAM	Scale:	AS NOTED
QAQC	RD	Drawing No.	C3.3
Date:	10/06/2017		

NOTICE TO BIDDERS
ADDENDUM #1
Bid #CM-17-18-01-NEC-01 B: North Education Center Site Utilities and Science Modular Plumbing Project
AND
Bid #CM-17-18-01-NEC-01 C: North Education Center Site and Science Modular Bldg. Electrical Project

Palomar Community College District

The following changes, additions, deletions, clarifications or corrections shall become part of the Bid & Contract Documents for the above listed project. This Addendum #1 forms a part of the contract document and modifies the original bidding documents. Acknowledge receipt of Addendum #1 in the space provided on the bid form. Failure to do so may subject bidder to disqualification.

CHANGE TO BID DOCUMENTS

For both CM-17-18-01-NEC-01-B and CM-17-18-01-NEC-01-C:

1) NOTICE TO CONTRACTOR CALLING FOR BIDS, **Estimated Start Date is revised to December 20, 2017.**
AND
2) SPECIFICATIONS – SPECIAL CONDITIONS, 1a. anticipated date of award is revised to **December 12, 2017** and 1b. anticipated start date is revised to **December 20, 2017**.

PRE-BID REQUESTS FOR INFORMATION QUESTIONS AND RESPONSES

(1) QUESTION: What type of PVC C900 will be used on this project: CL235 or CL265, DR14 or DR18?

RESPONSE: Masson RD 11/7/17 – DR-18 per private water system analysis report prepared by Wilson Engineering dated 8/31/17.

(2) QUESTION: Are water services 6" or 2"?

RESPONSE: Masson RD 11/7/17- All pipes shown are 6". Services are not shown and contractor should refer to the plumbing plans for sizes.

(3) QUESTION: Is there a deflection standard for the sewer pipe radius?

RESPONSE: Masson RD 11/7/17 – Manufacturers recommendation should be followed. For example, JM Eagle Gravity Sewer SDR 35 publication recommends a minimum radius for 8" SDR 35 as 200' accomplished through longitudinal bending of the pipe and not deflection of the joints.

(4) QUESTION: The Prime Trade Contractors have not been involved with the design or permit process, it is unreasonable to assume what the cost or quantity of permits that will be required. Please provide a list of any permits that will be required, the Local Authorities that will be required to be contacted along with the costs that will be incurred. (Spec: 09000 [2.0.16])

RESPONSE: DL 11.7.17 There are no permits required for either scope NEC-01-B or NEC-01-C

(5) QUESTION: During the Initial Preconstruction it was discussed to limit the hauling of stockpiled spoil to the far south end and knock down and spread out, Compaction would not be required. Please confirm this is correct which would differ from paragraph 3.11. (Spec: 09000 Part 3 Bid Package Division 33 Exterior improvements, Paragraph 3.11)

RESPONSE: DL 11.7.17 After reconsideration, compaction of spoils to 90% IS required Masson RD 11/7/17 - Supplied Specification should be followed.

(6) Page C3.7 calls for the sewer material to be 6" PVC C-900 section 33 31 00 2.01 B, calls for the material to be SDR 35. SDR 35 is a sewer type material. Please confirm which is correct. If C900 is correct please detail out how the corresponding fittings are to be adapted (drawing: C3-7 Sewer table; Spec: 33 31 00 2.01)

RESPONSE: Masson RD 11/7/17 – Private sewer pipe is to be SDR 35 DR 18. Table will be revised on C3.7.

(7) QUESTION: Please review the attached pages and confirm the highlighted sewer is existing see sheets C1.3 and C1.4 and only the sewer shown upstream of man hole S-5 Station 12+05.52 is new and a part of this scope. See Sheet C3.3 (drawing C1.3 and C1.4 and C3.3)

RESPONSE: Masson RD 11/7/17 - This is correct. MH s-5 and sewer in Palomar Drive is not part of this scope and will be installed by others. [REF Addendum 1 Attachment A]

(8) QUESTION: Please provide location from where the water is to be provided along with a routing, termination location material to be used. Will this line need to be chlorinated? See Paragraph 3.31 (Spec: 09000 Part 3 Bid Package Division 33 Exterior improvements, Paragraph 3.31)

RESPONSE: DL 11.7.17 This bid package shall assume 200LF of 3/4" water lines consistent with specifications for other water services, along with 4 points of connection to vending machines, drinking fountains, or other services. Location and routing TBD.

(9) QUESTION: Request for Clarification, sheet E1.3 has notes directing this contractor to install conduit raceway for the gear and panel feeds, with wire being installed and termination being done under work contract A#04-116581. (Ref. Sheet E1.3 and E5.1)

a. Is this correct for this bid package?

RESPONSE: JF JCE 11/7/17 Yes

b. How is the other contractor to know if we install conduits for copper wiring or Aluminum wire? Both copper and aluminum wiring is acceptable.

RESPONSE: JF JCE 11/7/17 conduit sizing is the same for either copper or aluminum reference feeder schedule on sheet E5.1

c. Just asking for clarification on Division # 27 and Division #28, 28 10 00, 28 20 00 & 28 30 00 are to be bid separate on separate date?

RESPONSE: DL 11.7.17 Complete site and interior fire alarm system is included in NEC-01-C. All required site and interior infrastructure/backbone (only) for the referenced specifications for communication, access control, security, and video is included in NEC-01-C. 15 Classroom modulars in Phase 3 will have all in-wall infrastructure completed BY OTHERS at the factory during

manufacture. All wiring, cabling, fiber, hardware, and devices for communication, access control, security, and video will be bid separately on a separate date.

d. Testing specification 26 90 90, which bid package is to do acceptance testing, coordination sturdy and Arc-Flash test?

RESPONSE: JF JCE 11/7/17 Package A#04-116580 DL 11.7.17 Package A#04-116580 is Phase 2, so all scope in question is to be completed by bid NEC-01-C.

(10) QUESTION: Please provide direction where the down stream piping for the Gas, Lab Air, Lab Vacuum is to be installed, Below Grade or Above Grade. If it to be installed above grade please provide a location on where it is to be installed. (Drawings P1.01)

RESPONSE: JDM P2S 11/7/17 All site gas, lab air, and lab vacuum on P1.01 are to be installed below grade, with the exception of the gas regulator and EQV assembly and connections to the compressor and vacuum, which are above grade. The piping changes from below grade to underfloor within the modular footprint.

(11) QUESTION: Question is would Edwards fire alarm system be acceptable, being this is brand new facility**?** **(**Ref: Sheets: Specification section 28 30 00 Pg #6; Comments: Specifications call for Simplex, notifier or FCI)

RESPONSE: JF JCE 11/7/17 Yes, as long as the installing contractor meets all the requirements listed in section 283000 1.7 Edwards is an acceptable alternative.

(12) QUESTION: Request for Clarification, sheet E1.7 detail #9 shows what appears to be fencing around main electrical switch board. Who is to install this fencing? (Ref: Sheets E1.7 detail #9-E1.7)

RESPONSE: DL 11.7.17 Fencing will be BY OTHERS in the forthcoming Paving/Hardscape/Site Improvements bid package.

(13) QUESTION: Also at pre-bid meeting on 10-31-17 electrical engineer stated that the conductors we to be terminated by this bid package contractor. Documents state the feeders and terminations are to be by others? What is the clarification on this issue? (Ref: Sheets E1.7 detail #9-E1.7)

RESPONSE: JF JCE 11/8/17 The electrical contractor is responsible for installing all conduits and conductors, the documents included some work in each phase but at the completion of all work everything should be included.

(14) QUESTION: There are two manhole that are to be installed. Please confirm that the details on C3.8, S5 and S7 need to be followed and will take precedence over the narrative in 33 05 16.

RESPONSE: Masson RD 11/8/17 – Plans supersede specs in all cases.

(15) QUESTION: Please also confirm whether the following will or will not be required:
Air Test for Sewer Manholes *Masson RD 11/8/17- No*
Interior Coatings *Masson RD 11/8/17- No*
Exterior Coatings as indicated in section 33 05 16 3.3G *Masson RD 11/8/17- Yes*

RESPONSE: Masson RD 11/8/17 Note also, the Sanitary Sewer Spec No. 33-31-00 indicates in section 1.03 "Regulatory Requirements" to follow Green Book Sec. 306. This indicates in section 306-7.8.2.1 (b) that a water infiltration or exfiltration test is required. This site warrants

(1) infiltration test in areas where pipe is expected to be in ground water and (2) an air pressure test will be allowed in areas where the pipe will not be in groundwater. The determination of which test is to be performed and evaluation of the tests will be the responsibility of the onsite DSA construction Inspector.

ADDITIONAL INFORMATION AND CLARIFICATIONS

(16) For bid NEC-01C, Document 0900 – DIVISION OF WORK item 3.43 please see attached Addendum1 Attachment B for power to future flow metering in existing manholes. Provide 1"conduit, 2#10, 1#12 ground to connect metering equipment located in 2 civil manholes, extend conduit and wiring to Power Panel "PPB" on one dedicated circuit.

(17) Bid Package NEC-01C should INCLUDE all provisions to have electrical switchgear onsite by **February 12, 2018.**

(18) Reference Addendum 1 Attachment C for new schematic site gas routing to point of connection at Horse Ranch Creek Road, including new location of meter and regulator (meter and regulator by SDGE). All scope from meter onto the site is part of Bid Package NEC-01B. Reference Addendum 1 Attachment D for latest SDGE gas trenching requirements. Parameters for site gas utility trenching within campus property line are as follows:

1. Only dry utilities (power, telephone, CATV, street lighting) are allowed in joint trench with natural gas.
2. No wet utilities (water/sewer/landscaping) are allowed in a joint trench.
3. 36" to 60" of undisturbed earth must separate a dry utility trench from a wet utility trench.
4. Power/electric-within the joint trench, a minimum of 12 inches of separation in all directions.
5. CATV, telephone and other dry substructures – within the joint trench, a minimum of 12 inches of separation in all directions.
6. 30" minimum cover on private property.
7. 32" minimum cover for 4" and greater pipe.

(19) Bid Package NEC-01C shall include for lighting fixture types A, A2, A3, A4, C and D all necessary components for a complete wireless lighting management control system including

a. Sensor modules mounted to each fixture
b. Wireless sensor manager or Gateways
c. Cellular antenna for smartphone support and all software and licensing
d. All components to provide Scheduled on/off and scheduled dimming control
e. Individual fixture addressing

(20) Addendum 1 Attachment E includes additional information and details from SDGE.

END OF ADDENDUM #1

Date Issued: November 9, 2017

Carmen Coniglio
Director
Fiscal Services
Palomar Community College

Ron Ballesteros-Perez, Assistant Superintendent
Vice President Finance & Administrative Services
Palomar Community College District

Gas Installation Requirements: General Order 112 F

Changes to Installation Requirements for Gas

The State of California has adopted and issued a change to General Order Number 112 (GO 112-F) governing the design, construction, testing, operation, and maintenance of Gas Gathering, Transmission, and Distribution Piping Systems. There are changes in GO 112-F that place qualification requirements on the individuals that perform the backfilling and compaction of trenches containing gas pipelines. Backfilling and compaction of gas pipeline trenches, along with gas pipeline fitting, are considered "Covered Tasks" under GO 112-F and these Covered Tasks requirements will now be applied to new construction of gas pipelines, whether this construction is for a new pipeline extension or new pipeline for the relocation of an existing pipeline. Qualification to perform backfill and compaction is shown as Covered Task "49 CFR 192.327 – Backfill".

GO 112-F has adopted the requirement in Title 49 of the Code of Federal Regulations (49 CFR) to require that operators of pipelines develop and conduct selection, training and testing programs to annually qualify employees for correctly carrying out each assigned responsibility necessary for complying with Title 49 CFR. General Order Number 112-F has made these requirements effective by January 1, 2017. You may refer to the Code of Federal Regulations Title 49, Subtitle B, Chapter I, Subchapter D, Part 192, Subpart N, Sections 192.801 – 192.809 to view the "Qualification of Pipeline Personnel". As a result of this change, any activity that is identified by the Utility as a Covered Task must be performed by a qualified individual.

The qualification requirements for individuals constructing gas pipelines apply to Applicant Installers as well as Utility employees. Applicant Installers include those individuals who are gas polyethylene fitters as well as those individuals who perform backfill and compaction tasks.

Starting January 1, 2017, the individuals (employees and contractors) you hire to perform gas polyethylene fitting and perform backfill tasks and compaction tasks must be qualified through Veriforce. SDG&E will assist you and your contractors in finding the Veriforce training to be qualified under these new requirements.

Starting January 1, 2017, SDG&E will be checking the qualification certificates of all individuals performing gas pipeline installation covered tasks. **SDG&E will not accept or energize any gas pipeline that has had covered tasks performed by non-qualified personnel**. **SDG&E will require that any covered task performed by a non-qualified worker be reconstructed by qualified workers. This could result in work, performed by qualified workers after the non-qualified work was installed, having to also be reconstructed.** Proof of qualification must be provided in the form of a Veriforce Field Verification Report (FVR).

- Please contact any contractors you might consider using for your gas pipeline installation work and review these requirements with them. If they have not been Operator Qualified, they will need to attend training and testing to meet the requirements if they want to perform gas pipeline installation, backfill and compaction tasks starting January 1, 2017. In addition to each employee who is performing covered tasks being qualified, the contracting company must also be qualified by having an approved Drug and Alcohol program.
- Should your contractor need to become qualified, they should contact SDG&E's Qualification & Compliance department by email at: GasQualifications&Compliance@semprautilities.com. The contractor will be issued an application packet and will be assisted with gaining access to the SDG&E operator qualification program for contractors located with the Veriforce system.
- SDG&E will provide a listing of current Veriforce qualified contractor companies.

Gas Pipeline Applicant Installation – Main and Service

1. For all pipeline installation an SDG&E Project Coordinator or Inspector A will inspect the qualifications of all individuals performing Covered Tasks.
2. For Applicant Installation of Gas Pipeline, a Contract Administrator will be assigned to coordinate and inspect polyethylene fitting activities.
3. Material normally installed by the utility will be provided by the utility; the contractor will pick it up at a designated location.
4. A Qualified Contractor will perform all polyethylene fitting installation work, except tie-in to energized system.
5. A Qualified Contractor will perform all backfill and compaction covered tasks.
6. The polyethylene fitting Qualified Contractor will provide reconciliation of material installed and as-built drawings.
7. SDG&E will perform the tie-in work and energize the new gas or electric systems.
8. Upon final acceptance of work performed by the Qualified Contractors, the facilities installed become the property of SDG&E.

Please consider the following as you make your selection of a Qualified Contractor:

1. The contractor must be licensed in California for the appropriate type of work.
2. Do they employ workers properly qualified for the specific skills required?
3. Do they comply with applicable laws (i.e., OSHA, EPA, equal opportunity regulations, etc.)?
4. Are they technically competent and have access to the proper equipment?
5. Do they demonstrate financial responsibility appropriate for the scope of the contract?
6. Do they have adequate insurance (Workers' Compensation, liability, property damage, etc.)?
7. Are they able to furnish a surety bond for performance of contract, if required?
8. Have the poly pipe fusion installers been qualified by SDG&E and Veriforce?
9. Have the backfill and compaction workers been qualified by Veriforce?
10. SDG&E allows only one qualified polyethylene fitting contractor per work order.

Contractors Qualified to Perform Backfill of Gas Trench

List of Contractors Qualified as of May 15, 2017
Task: 49 CFR 192.327 - Backfill

COMPANY	ADDRESS	TELEPHONE	WEBSITE
99 Construction Inc	1000 Pioneer Way El Cajon, CA 92020	(619) 333-9908	www.99construction.com
A Vidovich Construction Company Inc.	15785 Miss Ellie Ln Lakeside, CA 92040	(619) 390-1365	www.avidovichconstruction.com
AG Construction	30687 Shadow Mtn Ln Thousand Palms, CA 92276	(760) 404-73116	N/A
Allen & Sons Construction	523 9th Street Imperial Beach, CA 91932	(619) 823-2002	N/A
AM Ortega Construction Inc.	10125 Channel Road Lakeside, CA 92040	(619) 390-1988	www.amortega.com
ARB Inc	9201 Campo Road Spring Valley, CA 91977	(619) 295-2754	www.arbinc.com
Atlas Development Corporation Inc	991C Loma Santa Fe Dr. #115 Solana Beach, CA 92075	(858) 342-3101	N/A
Barnard General Engineering Pipeline Co.	14693 Chaparral Slope Rd. Jamul, CA 91935	(619) 884-2632	N/A
Brucon Construction Inc	30630 Camino Dr. Bonsall, CA 92003	(760) 212-0695	N/A
C E Wilson Corporation	662 Grand Ave Spring Valley, CA 91977	(619) 464-6721	www.cewilsoncorp.com
Carrion Construction Inc	3432 Fenelon St San Diego, CA 92106	(619) 252-2028	N/A
Cass Construction Inc	PO Box 309 El Cajon, CA 92022	(619) 590-0929	www.cassconstruction.com
Centaur General Engineering Inc	2166 Victoria Park Terr Alpine, CA 91901	(619) 445-6659 x101	N/A
Charles Doherty Concrete	2850 Industry Street Oceanside, CA 92054	(760) 535-9295	N/A
CMC Dirt Works, Inc.	PO Box 19010 San Diego, CA 92159	(619) 334-9811	N/A
Confidence Builders dba We Build San Diego	3004 Hill Valley Drive Escondido, CA 92029	(619) 867-6560	N/A
Cookson Enterprises Inc .	361 N Hale Ave, Suite B Escondido, CA 92029	(760) 839-2966	www.cooksonenterprises.com
Cornerstone R/R Construction Inc	124 E 30th St. #D National City, CA 91950	(619) 253-9342	N/A
CP Construction	105 S. Loma Pl Upland, CA 91786	(909) 981-1091	N/A

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COMPANY	ADDRESS	TELEPHONE	WEBSITE
Cromwell Contracting Inc.	PO Box 21131 El Cajon, CA 92021	(619) 561-9916	N/A
D & S Construction Inc.	13312 Ranchero Rd 18-270 Oak Hills, CA 92344	(760) 605-1756	N/A
Draves Pipeline Inc.	PO Box 1051 Bonsall, CA 92003	(760) 728-7094	www.dravespipeline.com
Eddington Rental Company	2335 Eucalyptus Drive El Cajon, CA 92021	(619) 890-0876	N/A
Flagg Inc	1014 Ninth Street Coronado, CA 92118	(619) 435-1800	www.flagg.com
Floyd & Howerton Plumbing Inc	1269 Greenfield Dr El Cajon, CA 92021	(619) 444-3040	www.fandhplumbing.com
G Hurtado Const Inc	16130 Reiner Circle Riverside, CA 92504	(951) 776-9903	N/A
Henkels & Mccoy, Inc.	634 Rock Springs Road San Diego, CA 92025	(858) 268-0400	www.henkels.com
Herman Weissker Inc.	1645 Brown Ave Riverside, CA 92509	(951) 826-8800	www.hermanweissker.com
Hidden Valley Backhoe	545 Clarence Ln Escondido, CA 92029	(760) 802-7438	www.hiddenvalleybackhoe.com
Hoffman Engineering & Pipeline Inc.	1192 Sunset Dr Vista, CA 92081	(760) 724-8550	www.hoffmanpipeline.com
HSCC Inc	PO Box 1168 Lakeside, CA. 92040	(619) 631-7983	N/A
Interpipe Contracting Inc	10870 Hartley Rd Santee, CA 92071	(619) 596-7733	www.interpipecontracting.com
J. Aiken Construction	10346 Harbin Pl Santee, CA 92071	(619) 633-6699	N/A
JDS Plumbing & Mechanical	2824 Felicica Way Vista, CA 92084	(760) 477-7967	www.jdsplumbing.com
Kaminskiy Design & Remodeling	12396 World Trade Drive San Diego, CA 92128	(858) 271-1005	www.kaminskiyhomeremodeling.com
Koloa Pacific Pipeline Corp	12527 Kirkham Ct. Poway, CA 92064	(858) 748-2841	N/A
Kyne Construction Inc	971 Industrial Place El Cajon, CA 92020	(619) 749-2400	www.kyneconstructioninc.com
L V Holderby Jr, General Engineering Contractor	PO Box 7792 San Diego, CA 92167	(619) 223-6630	N/A

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Task: 49 CFR 192.327 - Backfill

COMPANY	ADDRESS	TELEPHONE	WEBSITE
Lawrence Conery Engineering Inc	2805 Maple Street San Diego, CA 92104	(619) 822-7977	N/A
Leonard Construction Inc.	815 Peutz Valley Road Alpine, CA 91901	(619) 894-7338	N/A
LG Equipment Inc.	13465 Camino Cananda Suite 106-446 El Cajon, CA 92021	(619) 988-0924	N/A
Loya Constructors Inc	1539 Roosevelt Ave National City, CA 91950	(619) 905-6251	www.loyaconstructors.com
Lyons Construction Corp	961 Cabrillo Ave Coronado, CA 92118	(619) 884-8617	www.buildnado.com
Mark Garcia	30455 Roadrunner Ridge Valley Center, CA 92082	(760) 802-1739	N/A
Maxey Backhoe Service	11044 Hickory Ave. Hesperia, CA 92345	(951) 296-8697	N/A
MK & CK Enterprises Inc dba Mike's Backhoe Service	8427 Amino Drive Santee, CA 92071	(619) 504-8671	www.backhoeking.com
Montijo Backhoe Inc.	405 Palm Ave Chula Vista, CA 91911	(619) 420-6635	N/A
Murrieta Development Co.	42540 Rio Nedo Rd Temecula, CA 92590	(951) 719-1680	www.murrietadevelopment.com
NPL Construction Company	10603 Midway Ave Cerritos, CA 90703	(858) 693-3255	www.gonpl.com
Nu-Cal Pipeline	4055 Riverview Drive Riverside, CA 92509	(951) 742-7555	N/A
OME Enterprises Inc DBA A1 Construction Mgmt	5694 Mission Ctr Road #602321 San Diego, CA 92108	(858) 345-0044	N/A
Pacific Coast Grading Inc	2726 Morning Glory Ln Carlsbad, CA 92008	(760) 730-9990	N/A
Pacific Group Inc	261 North Highway, 101 Solana Beach, CA 92075	(858) 401-9090	N/A
Pacific Utility Installation Inc.	1585 Harmony Circle Anaheim, CA 92807	(714) 970-6430	www.pacificutility.com
Pacifica Contracting Inc.	PO Box 90668 San Diego, CA 92169	(858) 449-0113	N/A
PAR Electrical Contractors Inc.	525 Corporate Dr Escondido, CA 92029	(760) 291-1192	www.parelectric.com

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COMPANY	ADDRESS	TELEPHONE	WEBSITE
Paul Hansen Equipment Inc	603 S. Marshall Ave El Cajon, CA 92020	(619) 263-2191 X203	www.paulhansenequipment.com
Phazer Electric Inc	1374 Presioca St Spring Valley, CA 91977	(619) 248-7865	www.phazersolar.com
PR Frame Construction	230 Bauaria Dr. Vista, CA 92083	(760)420-1616	N/A
Pride Resource Partners LLC	4550 Kearny Villa Rd. 202 San Diego, CA 92123	(858) 430-6630	NA
Pro Frame Builders Inc	2086 Valley View Blvd El Cajon, CA 92019	(619) 457-0985	N/A
Quality General Engineering Inc.	710 Grand Ave Spring Valley, CA 91977	(619) 464-1053	www.qualityge.com
Rand Engineering Inc	P.O. Box 1830 Alpine, CA 91901	(619) 722-6767	www.randengineeringinc.com
RAOZ General Engineering	P.O. Box 3127 San Diego, CA 92163	(619) 237-7610	N/A
Razors Edge Grading and Excavation	13465 Camino Cananda Suite 106-446 El Cajon, CA 92021	(619) 929-1001	N/A
RGC General Engineering Inc	230 Glover Avenue, Suite E Chula Vista, CA 91910	(619) 651-8368	www.rgcge.com
Richard Lopez Construction Inc	250 E. Rincon Street, Suite 106 Corona, CA 92879	(951) 372-0944	N/A
Rockwell Construction dba Rockbilt Construction	29570 Lilac Road Valley Center, CA 92082	(760) 802-8481	N/A
S E Pipe Line Construction Company	11832 Bloomfield Ave Santa Fe Springs, CA 90670	(562) 868-9771	www.sepipeline.com
Santa Ana Creek dba Mark Company	2288 N Batavia Orange, CA 92856	(714) 685-3462	N/A
Schilling Paradise Corp	697 Greenfield Dr El Cajon, CA 92021	(619) 579-6500	www.shillingcorp.com
Seuss Engineering Inc	2466 Haileah Lane Alpine, CA. 91901	(679) 820-3718	N/A
Sheldon Site Utilities	12125 Paine St. Poway, Ca., 92064	(858) 486-8004	N/A
Sim Engineering Inc	3658 Palomar Dr. Fallbrook, CA 92028	(760) 731-6125	N/A
SL Brown Construction Inc.	1219 W. Imperial Hwy. 101 Brey, CA 92621	(562) 631-9384	N/A

Contractors Qualified to Perform Backfill of Gas Trench

List of Contractors Qualified as of May 15, 2017
Task: 49 CFR 192.327 - Backfill

COMPANY	ADDRESS	TELEPHONE	WEBSITE
Snelson Companies Inc.	601 W State St Sedro-Woolley, WA 98284	(360) 856-6511	www.snelsonco.com
SoCal Construction & Consulting Service Inc dba SoCal CCS	PO BOX 1329 Fallbrook, CA 92028	(760)-723-8907	www.contractorccs.com
Southern Contracting Company	559 N. Twin Oaks Valley Rd. San Marcos, CA 92069	(760) 744-0760	www.southerncontracting.com
Southwest Contractors	3235 Unicorn Rd Bakersfield, CA 93308	(661) 588-0484	www.swcontractors.net
Steel Mountain Construction Inc	PO Box 21209, El Cajon, CA 92021	(619)440-8661	N/A
Straightline Engineering Inc	11127 Moreno Ave Lakeside, CA 92040	(619) 443-3313	www.straightlineeng.com
Strelic Plumbing Inc dba Advanced Plumbing Company	9423 Bond Avenue El Cajon, CA 92021	(619) 447-2770	N/A
Submar Inc	P.O. Box 4417 Houma, LA 70361	(985)868-0001	N/A
Sunrise Bobcat & Hauling Service, Inc	12124 Industry Rd Lakeside, CA 92040	(760) 801-8981	www.sunrisebobcat.com
Taylor Underground Inc	P.O. Box 760 San Jacinto, CA 92581	(951) 654-9605	N/A
TBU Inc	244 Maple Ave. Suite T Beaumont, CA 92223	(951) 769-0647	N/A
The Fishel Company	5878 AutoPort Mall San Diego, CA 92121	(858) 658-0830	www.teamfishel.com
Top Grade Engineering Inc	6870 Mewall Dr. San Diego, CA 92119	(619) 303-6870	N/A
Walton Bros Enterprises Inc DBA CJW General Contracting	PO Box 180 San Jacinto, CA 92581	(951) 652-0903	N/A
WEG Engineering	15780 Olde Highway 80 El Cajon, CA 92021	(619) 921-7114	N/A
West Coast Underground Inc	PO Box 261108, San Diego, CA 92196	858-689-7900	N/A
West Tech Contracting Inc	568 N Tulip St Escondido, CA 92025	(760) 233-2570	N/A
Westpac Pipeline, LLC	3451 Via Montebello, Ste 192 Carlsbad, CA 92009	(909) 243 9194	www.westpacpipeline.com

Contractors Qualified to Perform Backfill of Gas Trench

List of Contractors Qualified as of May 15, 2017
Task: 49 CFR 192.327 - Backfill

COMPANY	ADDRESS	TELEPHONE	WEBSITE
WHC & CO Inc William Howse Contractor	3439 Rowe Street San Diego, CA 92115	(619) 583-2357	N/A

The preceding list shows contracting companies who have qualified through Veriforce to perform the covered task of backfilling gas trenches.

This list may be provided to SDG&E customers upon request. SDG&E does not make any recommendations of contractors but only is providing a listing of those who have been qualified by Veriforce.

This list was accurate as of the date shown above. Qualifications are subject to expiration and therefore should be verified prior to engaging the services of any of the listed companies. To obtain the most current list of qualified contractors, visit the SDG&E website at http:/www.sdge.com/builder-services/builder-services-resources and open the PDF document, *Customer Contractors Qualified to Perform Backfill of Gas Trench (GO 112 F) (pdf)* .

SDGE
A Sempra Energy utility

Project No. 3x143981

September 12, 2017

Roger Gordon
Johnson Consulting Engineers Inc.
12875 Brookprinter Place, Suite 300
Poway, CA 92064

Dear Roger:

PROJECT: Palomar College North Campus

Thank you for requesting that SDG&E provide electric service to your project. Meter and service location information, and other technical information is enclosed for your use. Construction responsibilities are outlined following. And, the related costs are attached as the "Cost Summary Sheet".

RATES

Based on the information provided to your Planner, your project has been assigned a rate of "ALTOUCP2". Other optional rates may be available. If you are interested in talking with someone regarding your options, please contact the SDG&E Call Center at 1-800-411-7343.

UNDERGROUND ELECTRIC

We will extend underground electric service lines to serve your project. There will be no charge for this extension due to your allowances covering your costs. Based on your selection, the advance was computed on the following option:

> You pay a refundable advance covered by our contract and it is subject to refund when other customers are served from this extension. Your advance is subject to refund for a period of ten years.

Underground service will be supplied under the provisions of Electric Rule 15 (Distribution) and 16 (Service). In accordance with these rules, you are responsible for a clear path, the trench, backfill, conduit and concrete substructure(s) from the existing 1-EB 5-inch conduit to the metering facilities. (Also, you will also be responsible for the maintenance of the service facilities you install.) We will install and connect the electric service conductors.

The manufacturer of your electrical equipment --if rated 1000 amperes or above-- must submit four (4) copies of the drawings to: SDG&E ENERGY MEASUREMENT and SERVICE STANDARDS at 8316 Century Park Ct., Suite CP52F, San Diego, CA 92123-1582. The submittal must be made prior to fabrication and needs to have the project address included. One copy will be returned with approvals or corrections, as needed.

Please note that when five-inch service conduits are to be installed, a minimum of six-feet clear and level working space must be provided in front of the underground pull section to permit setup and operation of cable pulling equipment.

EASEMENTS

Easements are required before our facilities can be installed. Questions regarding the easements should be directed to the right-of-way agent.

STORM WATER PERMITTING

It is the project applicant or landowner's responsibility to assure compliance with federal, state and local storm water regulations for construction soil disturbance activities. This includes the trenching and excavation required in conjunction with the installation of new gas and electric underground utilities.

SITE ACCESS – LINE TRUCK, METER, SERVICE, AND TRANSFORMER

SDG&E must have line truck access to gas and electric facilities for the purpose of installation, reading, testing, inspection, maintenance, and emergencies (refer to SDG&E Service Standards and guide sections 016, 005, 604, and 1006-1008).

If you are installing an electrically operated gate for your project, there are several things you need to know. First, 24-hour access to the gas and electric meters is required by the Fire Department and SDG&E. Because of the serious safety issues involved, we cannot set meters until access is guaranteed. You should contact the Fire Department to obtain their specific requirements, but our minimum requirements are:

1. A Schlage VTQP Quad Section cylinder in a key switch wired to the gate controller. A list of locksmiths authorized to sell SDG&E approved locks is available on request.
2. A means of opening the gate from the inside without the use of a vehicle to activate the controller. This will require the installation of an additional key switch inside the gate if there is no unsecured switch available.

BEFORE EXCAVATION PLEASE READ THE FOLLOWING

After you have been notified by us that your construction order has been issued, you or your contractor must notify our Construction Department by phone, 48 hours prior to having the trench ready. Please call 760-432-5805 to arrange a pre-construction meeting or to discuss any construction-related questions.

So that you may effectively schedule your work, you should know that our Inspector is required to inspect your work at the following stages and you will need to call 760-432-5805 as each stage is ready.

- ❑ Trenching
- ❑ Conduit installation and mandrelling
- ❑ Backfill and compaction
- ❑ Substructure installation.
- ❑ Completion stage (final inspection)

When calling our Construction Department, the following will identify your project:

Project Name: Palomar College North Campus
Work Order #: Electric: 3x143981

TRENCHING ADVISORIES

Prior to trenching /excavating, please contact DigAlert (USA Markout) at least 48 hours in advance at 811. We will locate and mark-out our facilities. Failure to call may result in serious injuries and/or substantial damage for which you will be responsible.

You, probably, will need an excavation permit from the County prior to your excavation work. Additionally, you are responsible for obtaining any other necessary permits and for adhering to all applicable governmental and regulatory statutes, codes, and rules.

Finally, before you begin trenching, I strongly suggest you contact the local telephone and cable television companies for their requirements and any charges they may have.

Your responsibility for trenching includes all final street and sidewalk repair per City of San Diego Standards. Be sure you have checked with the City on the requirements for paver, brick, sidewalk, and street final repairs.

MISCELLANEOUS

There are, of course, a few other things to be done before the meters actually can be set. I have prepared a checklist for your use.

- ❑ Your work must be completed and accepted, and SDG&E's portion of the work must be completed.
- ❑ Ensure that the address we have on record and your permit address match.
- ❑ Whoever is going to be responsible for the billing needs to call our Customer Contact Center and make application. The Center is open 7-24 and the number is toll free: **1-800-411-SDGE** (7343).
- ❑ We must receive either permanent or temporary inspection clearances from the County.

COSTS

All costs and offers quoted in this letter shall expire at the end of the business day on December 12, 2017. If business negotiations are not completed, or if you request revised costs after that date, an engineering fee may be required. Also, please understand that SDG&E is subject to California Public Utilities Commission decisions – any changes directed by the Commission can affect the quotes.

The costs quoted in this letter include a cost component to cover SDG&E's estimated liability for State and Federal Income Tax.

ALLOWANCES

If, after six (6) months following the date SDG&E is first ready to serve residential loads for which allowances were granted, or one (1) year for non-residential loads for which allowances were granted, Applicant fails to take service, or fails to use the service contracted for, Applicant shall pay SDG&E an additional contribution, based on the allowances for the loads actually installed.

Once all necessary easements are obtained and your contracts is received, your order will be issued.

Please sign and return the ORIGINAL and one duplicate copy of the enclosed Agreements. The third set of Agreements is for you to keep for your records until you have received a complete set signed by us.

If the signatory is a corporation, the agreement must be signed by a corporate officer, such as the President. If the signatory is a partnership, the agreement must be signed by a general partner and the Partnership Status Report must be completed and returned. If the signatory is a sole owner (proprietorship), the agreement must be signed by the owner. If an Indian tribe is the signatory, the Tribal Chairperson or secretary may sign. Any signatory may be represented by an agent if a letter of authorization for the agent accompanies the agreement package. If the agreements are cancelled for any reason, or if any refunds are due under the terms of the agreements, all funds, less SDG&E's costs, shall be refunded to the signatory

If the contract documents are cancelled for any reason, or if any refunds are due under the terms of this contract, all funds, less SDG&E's cost, shall be refunded to Applicant. By signing this contract, you agree to indemnify, defend and hold SDG&E harmless from and against any and all demands, claims, suits, costs, attorneys' fees (both in-house and outside counsel), witness fees, liabilities (contractual or otherwise) and other expenses, in any way arising from the refunding of any money or other pecuniary advances, whatsoever, regardless of the cause.

THANK YOU

We appreciate your business and hope you are very satisfied with our service. For additional general information you can visit our website at http://sdge.com.

Important Reminder: All of your required contracts and payment must be submitted together as a complete package in order to complete the processing of your contract agreement in a timely manner and avoid any delay of your project.

If I may be of further assistance or should you have any questions, please call me or my assistant at the number below. Our normal office hours are 7:00 AM to 4:00 PM, Monday through Friday.

Sincerely,

Andrew Newcomb
Customer Project Planner
Telephone: (760) 480-7731

Enclosures

Submitted to Applicant by
Andrew Newcomb

SDGE

A Sempra Energy utility℠

General Conditions for Underground Electric Distribution, Service Systems Construction and Gas Trench

PROJECT WORK ORDER NUMBER AND PROJECT TITLE

Palomar College North Campus
WO 4084548 Proj: 3x143981

CONSTRUCTION / TRENCH INSPECTIONS
PH: 760-432-3805

MARK-OUT **1-800-227-2600**

NOTICE

ALL WORK DONE PURSUANT TO THE ATTACHED MUST BE ACCOMPLISHED IN COMPLIANCE WITH THE FEDERAL AND STATE OF CALIFORNIA OCCUPANTIONAL SAFETY AND HEALTH ACT.

ONE COPY TO BE KEPT AT PROJECT SITE

1.0 SCOPE OF GENERAL CONDITIONS

These General Conditions apply to new underground electric facilities and gas trench where the facilities being installed by an Applicant or by an applicant's contractor are for operations by SDG&E.

2.0 DEFINITION OF TERMS

The following terms in these General Conditions shall be applied as follows:

2.1 "Agent" - Those persons authorized to act for or represent the Applicant or SDG&E.

2.2 "Applicant" - The party or parties contracting with SDG&E for underground facilities and to perform work described in these General Conditions.

2.3 "Contract Documents" - The Contracts, Agreements, Specifications, General Conditions, SDG&E Standards, drawings, permits and other papers for the purpose of construction or pertaining to construction of underground electric facilities and gas trench.

2.4 "Day or Days" - Normal SDG&E work days (Monday through Friday) unless otherwise specified.

2.5 "Excavation" - Trenching, boring, and removal of soil required for the installation of substructures, all necessary backfilling including required imported backfill material and removal of trench spoil, and acceptable surface repair to the local governing authority's specifications.

2.6 "Final Acceptance" -. SDG&E's acceptance of all work performed by the Applicant includes "as-built" drawings and reconciliation of all material obtained for SDG&E.

2.7 "Final Grade" - The grade after paving and landscaping are completed.

2.8 "Finish Grade" - The grade shown on plans.

2.9 "Improvements"- The requirements of either the governing municipality or SDG&E which will ensure protection for SDG&E facilities and provide verification of finish grade. Improvements include, but are not limited to, curbs, sidewalks, berms, barricades, bridle or pedestrian paths, raised planters or parking lot berms in residential, commercial, manufacturing, or industrial projects, when these improvements are specified adjacent to SDG&E's facilities.

2.10 "Inspector" - The SDG&E employee assigned to inspect and accept or reject work on the basis of compliance or lack thereof with the Contract Documents, SDG&E standards, specifications and policies.

2.11 "Issued and Released" - When the specifications have been issued to the Construction Department and all related holds (monies, contracts, Right of Ways, etc.) have been removed.

2.12 "Landowner" - Public or private entity, or a natural person or persons, whose property is affected in any way by construction performed by Applicant.

2.13 "Project Coordinator" - The SDG&E employee assigned to coordinate projects through construction. The Project Coordinator will work with the SDG&E Inspector and Applicant to coordinate the scheduling of SDG&E crews.

2.14 "SDG&E" - San Diego' Gas & Electric Company (including its contractors, subcontractors, employees, representatives or agents).

2.15 "SDG&E Standards" - SDG&E Gas and Electric Construction Standards, including SDG&E's "Service Guide" (available upon request).

2.16 "Specifications" - The construction drawings (including any revisions, supplements or SDG&E approved field changes) furnished to the Applicant detailing the work be performed.

2.17 "Substructures" - Includes, but are not limited to, manholes, handholes, vaults, pads (for transformers, terminators or fuse cabinets), grounding grids and other structures needed to accommodate cables, connections, transformers and appurtenances.

2.18 "Vault Book" - SDG&E transformer vault specifications.

2.19 "Work" - The performing of all labor and the furnishing and installing of all material and equipment, necessary to accomplish all the duties and obligations imposed by the Contract Documents and Specifications.

3.0 CONTRACT DOCUMENTS

3.1 These Contract Documents are mutually binding on all and the Applicant must be thoroughly familiar with them. Technical trade terminology shall retain well known meanings. All Applicant work responsibility and any work reasonably inferred necessary to produce the intended results, shall be supplied by the Applicant. Specified dimensions (except as provided in section 15.0) shall govern. Work not specified shall be performed in the same manner as similar work specified. Specific details take precedence in the manner of construction.

4.0 INSPECTION OF WORK AND INTERPRETATION OF CONTRACT DOCUMENTS

4.1 All work and materials shall be of SDG&E approved manufacture class or grade specified in the Contract Documents. It shall be the Applicant's responsibility to thoroughly familiarize all of its Agents with the contents of the Contract Documents and to accurately advise SDG&E of its construction schedule. SDG&E will be represented in the field by an Inspector, and all work and material shall be subject at all times to inspection by the Inspector.

4.2 Applicant is required to call the number on the cover sheet for inspection of his work by 2:30 p.m. one workday prior to the date inspection is requested. The Inspector will inspect each completed stage of Applicant's work including: trenching, substructure installation, conduit installation, backfill, compaction, and cabling. As each stage is completed, the Inspector will approve it. If SDG&E crews are needed, they will be dispatched as available after the Inspector has verified that the Applicant has satisfactorily performed his portion of the work.

4.3 Any workmanship or material supplied by the Applicant which does not meet the criteria specified in the Contract Documents may be rejected by the Inspector whose decisions shall be final and conclusive. The decision of SDG&E shall be final as to all matters of interpretation of the Contract Documents.

4.4 Any workmanship or material rejected by the Inspector shall be replaced by Applicant at Applicant's expense. Inspections and final acceptance shall not relieve the Applicant's obligation to complete the work in accordance with the Contract Documents and SDG&E Standards.

5.0 SDG&E'S RIGHT TO WORK

If the Applicant fails to perform the work in accordance with the standards, within the prescribed time period, or any obligation imposed by the contract documents, SDG&E, except as indicated below, after giving seven days written notice to the Applicant, may take over and finish the Applicant's work or may correct any defects at the Applicant's expense. If SDG&E is unable to collect reimbursement for its cost of work after 30 ~~days from completion of the work, the actual cost may be deducted from Applicant's refundable monies on~~ deposit with SDG&E, or, at its option, SDG&E may recover such cost by claim against the surety on the performance bond furnished by the Applicant.

6.0 SCHEDULING

After receipt of written notification from SDG&E that construction orders have been released and issued, the Applicant shall immediately advise SDG&E of the construction schedule, arrange a pre-construction meeting with the Project Coordinator and verbally confirm the start date two working days in advance of trenching.

6.1 All work by Applicant shall be coordinated with SDG&E in a manner that will permit SDG&E or its Agents to perform its work without delay and in an efficient manner throughout the period of construction without being required to reschedule its construction forces after starting the field installation.

6.2 The Applicant understands that trenching and backfilling must be coordinated with the installation of facilities such as gas piping and/or equipment by SDG&E. The Applicant shall contact the Project Coordinator to avoid SDG&E construction schedule delays. The Inspector will specify the amount of clear open trench for SDG&E work. Inspector and Construction Crew work will be performed during normal business hours. The Applicant shall continue trenching to allow the project to be completed in an efficient manner. Joint trench agreements with other underground utilities must be approved by SDG&E before the start of construction and coordinated to avoid conflicts between construction forces.

6.3 The Applicant should call Underground Service Alert (1-800-277-2600) for mark-out two working days before trenching. The Applicant must locate all existing facilities before construction and protect them throughout the construction period. Gas and electric facilities will not be installed until all wet utilities have been installed and backfilled. Pressurized sprinklers and irrigation lines installed after SDG&E's facilities must maintain the minimum clearances specified in SDG&E Standards.

6.4 Applicant shall report to Project Coordinator any damage to any facilities resulting from the construction and shall file a complete written report with SDG&E of the surrounding circumstances within 24-hours of the incident or by the end of the next working day.

7.0 SURVEY AND EASEMENTS

The Applicant shall be responsible for establishing and maintaining alignment and finish grade for SDG&E substructures and trenches throughout the construction of the project. SDG&E will survey, obtain easements and stake trench positions when easements dictate a definite route on private property, or in a dedicated street position.

8.0 PAVEMENT REMOVAL AND REPLACEMENT

8.1 Applicant agrees, that when trenching or excavating in paved streets or sidewalks, all cutting, removal and replacement of pavement or concrete shall be performed by methods which meet the requirements of all governmental authorities having jurisdiction.

8.2 Applicant agrees that any curtailment or rerouting of traffic necessitated by Applicant's work within streets or sidewalk areas shall be coordinated with all governmental authorities having jurisdiction.

9.0 EXCAVATIONS

9.1 Excavations for substructures shall be made to such dimensions and grade lines as are necessary to perform the work shown by Specifications and to a depth that will provide the ground coverage between the top of the conduit entering the substructures and finish grade directed in the appropriate SDG&E Standards. Applicant shall verify in writing that all substructures are set to finish grade prior to backfilling. The Applicant shall maintain finish grade stakes for all four corners of all substructures until final backfill and compaction has been completed and accepted by Inspector. Should any adjustments to substructures be required due to variations in final grade not previously submitted to SDG&E, all costs for adjustments made by SDG&E shall be borne by the Applicant.

9.2 Trenches shall be excavated in accordance with location and alignment shown on the Specifications and to provide minimum width and depth necessary to install the substructures, electric lines or gas pipe as specified in SDG&E Standards.

9.3 Bottom of excavations and trenches shall be free of rocks, dirt clods and pockets and shall be graded with a base so that sags will not occur in any conduit or gas pipe placed therein as specified in SDG&E Standards.

9.4 Any excavation made to an incorrect depth shall be adjusted to the correct depth and thoroughly compacted by Applicant in accordance with the compaction requirements of the Contract Documents.

9.5 Where excavations occur in soil, which is, in the opinion of the Inspector, unstable and unsuitable for adequately supporting the conduit, gas pipe or substructures, reinforcement shall be required and constructed to accommodate the individual case as determined by SDG&E.

9.6 The Applicant shall not place excavated soil where it would pose a hazard to pedestrian or vehicular traffic or interfere with the installation of SDG&E facilities. The Applicant is responsible for the disposal of all excess soil.

9.7 If SDG&E encounters hazardous or toxic material while performing construction on the project, SDG&E will halt work immediately, and it will be the Applicant's responsibility to remove and or clean up all hazardous toxic material. SDG&E will have no liability or obligation whatsoever to clean up, remove or remediate any hazardous or toxic materials discovered during the course of construction, unless the material were deposited through the negligence of SDG&E.

9.8 The location of all excavation is subject to change as necessitated by conflicts, obstacles, or field conditions revealed by actual examination during construction and Applicant agrees to pay any additional trenching, excavation, backfill, compaction, pavement replacement or other costs required by such changes in location.

9.9 When padmount equipment is to be installed in a location which requires equipment barriers or retaining walls, Applicant shall install them in accordance with SDG&E Standards.

9.10 Retaining walls may be used as an acceptable alternative to establishment of proper grade. They shall be provided and installed at Applicant's expense per SDG&E Standards. If retaining walls are required for any reason during the warranty period, they also shall be provided and installed at Applicant's expense.

10.0 INSTALLATION OF CONDUIT

THE FOLLOWING PROVISIONS APPLY TO APPLICANT'S INSTALLATION OF CONDUIT:

10.1 Conduits shall be installed in the trench in the alignment shown on the Specifications and all material used shall be those specified in SDG&E Standards.

10.2 On approval of Inspector, ground cover may be reduced where the specified minimum ground cover cannot be obtained in crossing over storm drains, foreign substructures, or other obstacles.

10.3 Extreme care shall be exercised to ensure that foreign matter does not enter the conduits during installation, or at any other time thereafter.

10.4 When such responsibilities are shown on the Specifications, cable pole conduits shall be SDG&E approved and installed per SDG&E Standards unless otherwise instructed by the Inspector.

10.5 Manufactured horizontal bends in the conduit shall be installed according to SDG&E Standards. Should field conditions warrant a lesser radius, the Applicant shall obtain SDG&E approval.

10.6 All concrete, unless otherwise permitted by Inspector, shall be ready mixed and shall meet the requirements of SDG&E Standards.

10.7 The installation of conduit by Applicant must be coordinated with SDG&E or its Agent to permit the installation of substructures and any conduit which may be installed by SDG&E. After the substructures are placed in position, the conduits shall be terminated in the substructure per SDG&E Standards.

10.8 Service conduit stubs shall be extended and marked three feet beyond the substructure or retaining wall according to SDG&E Standards.

10.9 Any trench or excavation of 5 feet or more in depth, which will be entered by SDG&E employees, requires spoil to be placed a minimum of 24 inches from edge of excavation. Depths of less than 5 feet require a minimum clearance of 12 inches. Shoring or sloping may be required in depths less than 5 feet and is required for depths 5 feet or more (OSHA).

10.10 Gas and electric facilities in conflict with other construction must be shown on plans provided by Applicant, and SDG&E must be notified prior to trenching.

10.11 Street light circuits, CATV and telephone positions must be verified by the Applicant with each serving agency and installed to their specifications in addition to SDG&E Specifications.

10.12 Each run between substructures, pads, customer's service, risers, etc., shall be one size conduit continuously, i.e., no reducers are allowed except where the conduit enters the substructure or above the ground level on a riser pole. Deviations must be approved by SDG&E.

10.13 All plastic conduit shall comply with SDG&E Standards, identified by manufacturer's marking, and be verified that it is an approved conduit. Conduit found to be defective or not on approved supplier's list shall not be acceptable.

10.14 Installation of electric conduits with concrete substructures must be coordinated with SDG&E. All conduits shall enter a substructure in a horizontal plane, using bottom set of knockouts first, exception being a 3315, 3316 and 3324 manhole in which part of the job package are pages showing conduit placement to assure correct cable training and connections. Conduits shall be terminated in substructures per SDG&E Standards. Open conduit ends shall be sealed during construction to prevent contamination inside conduit. Conduits must be watertight and mechanically sound at entry point.

10.15 Core boring can only be authorized by SDG&E to insure against structural damage. All work must be performed per SDG&E Standards. Conduits used with core boring must be grouted.

10.16 Mandreling of conduit must be performed by the installer in the presence of SDG&E Inspector. The conduit installer must provide a 3/16-inch polypropelene pullrope in each conduit. The rope shall be approved by SDG&E and have a minimum average tensile strength of 720 lbs. Pullrope tails of 24 inches shall be secured at each end of the conduit.

11.0 BACKFILL AND COMPACTION

When Applicant's responsibility under the Contract Documents includes base, shading, backfill and compaction, the following provisions apply:

11.1 Backfill, base and shading shall be made with materials and by methods which will meet the requirements of all applicable codes, ordinances and SDG&E Standards. It must be approved by SDG&E Inspector.

11.2 Compaction shall be performed in accordance with governmental agencies and shall have a minimum of 90% relative compaction.

11.3 When gas piping is installed and not energized, shading will be done the same day, if practical, but not later than the following calendar day. Gas mains must be shaded and backfilled before they are energized. Gas services, when energized, must be covered during the same working day. During construction, new service lines must be made safe from normally anticipated hazards. Energized service lines left unattended must have a minimum of 12 inches cover on private property and 18 inches on public property. Completion of the backfill must be made in a timely manner.

11.4 Shading between the different levels of jointly used trench must be compacted with reasonable care to prevent damage to the facilities installed and shall be compacted before proceeding with the next utility installation.

11.5 Soil filled sacks or redwood timber breakers shall be installed across trenches as required by the Inspector in banks exceeding 25% slope. Water diversion berms shall be cut diagonally across trenches and working strips on banks exceeding 35% slope. The Inspector may require cement slurry backfill on slopes as specified in SDG&E Standards.

12.0 SUBSTRUCTURES

12.1 GENERAL

Unless otherwise specified, all substructures, and related hardware including, but not limited to, frames, covers, barrier posts, ladders, ground rods, ground grids and cable supports shall be provided and installed by the party responsible for installing the substructures and shall comply with SDG&E Standards and SDG&E Vault Books. All of the substructures and related hardware used are to be approved by SDG&E. The above facilities, if applicable, will be installed at locations specified by the Specifications and in a manner prescribed by SDG&E Standards.

12.2 PRIMARY MANHOLES AND VAULTS

The location of conduit entrances or recesses and sumps shall be as shown in SDG&E Standards. Manhole or Vault entrances shall be installed as shown on the specifications. Neck extensions shall be ordered with the manhole or vault and shall be adjusted to permit installation of the cover at final grade.

12.3 PRIMARY HANDHOLES

When Applicant's responsibility under the Contract Documents includes all or a portion of the substructures, Applicant shall adjust the top section and lid to final grade per SDG&E Standards. Conduits entering handholes shall be terminated in accordance with section 10.8.

~~Where any substructures are to be installed by SDG&E or its contractors and Applicant is~~ responsible for excavation, finish grade must be established to within 3 inches before substructure can be set. The top section and lid shall be adjusted to final grade by SDG&E or its contractor if less than a 3-inch adjustment is required. The developer is responsible for

maintaining the excavations for substructures for a period of five days. If SDG&E has not installed the substructures within the five-day period, SDG&E assumes responsibility for the excavation.

12.4 TRANSFORMER AND EQUIPMENT PADS AND SECONDARY HANDHOLES

Prior to the installation of these facilities, the Applicant must complete the improvements adjacent to these facilities including barrier posts. Proper compaction and final grade must be established by Applicant and inspected by SDG&E for the transformer and equipment pads. Applicant must complete the required excavation for secondary handholes and site preparation for pads.

12.5 COMPLETION OF IMPROVEMENTS

The Applicant must complete improvements (including proper compaction, final grade, excavation and site preparation) adjacent to pads and secondary handholes prior to scheduling SDG&E crews for installation and energizing of facilities. If improvements are to be installed in segments, a minimum of 10 feet of improvements fronting electric facilities is required. Any damaged substructure shall be replaced by the Applicant before the system is energized.

13.0 CABLE INSTALLATIONS

THE FOLLOWING PROVISIONS APPLY TO APPLICANT'S INSTALLATION OF CABLE:

13.1 It shall be Contractor's responsibility to protect the cable and other material furnished by SDG&E against damage. Cable pulling methods shall be subject to the approval of the Project Coordinator. If cable or associated materials are damaged due to Contractor's negligence or faulty equipment, Contractor shall replace damaged section in a manner satisfactory to SDG&E and at no additional cost to SDG&E. All sections of cable that are damaged by the application of grips shall be discarded.

13.2 All cable ends shall be sealed to effectively prevent moisture from entering the cable.

13.3 HANDLING REELS

Inspection Contractor shall inspect each reel upon receipt to determine whether or not visible damage has occurred during transit and/or storage.

Loading and Unloading Reels shall be handled in such manner as to prevent smashing, nicking, cutting or other damage to the cable. When unloading reels from trucks, reels shall not be dropped to the ground or allowed to roll freely down ramps. Cranes or other equipment of adequate capacity shall be utilized, and care shall be taken to avoid damage to the cable or reels.

Final Inspection After removing lagging or other protective covering from reels, Contractor shall examine outside layer of each reel to be sure that the cable is undamaged and that no nails, staples, or other sharp objects which would damage the cable during unreeling protrude on the inside of the reelheads.

Empty Reels Contractor shall return all empty returnable reels prior to completion of the work as instructed by the Project Coordinator. Contractor shall dispose of all empty non-refundable reels.

13.4 SPLICES

Unless otherwise directed, splices shall be made in accordance with SDG&E Standards.

The Project Coordinator shall be present when all primary splices are performed, and shall reject those splices which do not comply with SDG&E Standards. Failure to notify the Project Coordinator is justification for rejection of the splices not performed in the Project Coordinator's presence.

The tools required for splicing the cable shall be furnished by Contractor and approved by SDG&E.

13.5 PROOF TESTING

All primary installations shall be proof-tested prior to permanent connection to the distribution system. The Project Coordinator shall be present during all proof testing. Failure to notify the Project Coordinator is justification for rejection of the tests not performed in the Project Coordinators presence.

The devices and methods utilized by Contractor for proof testing shall depend upon the circuit configuration and type of equipment. Testing methods shall be in accordance with approved SDG&E procedures.

14.0 SAFEGUARDS

All material, work, traffic control and work areas shall comply with all applicable Federal, State, and local safety laws or rules that are necessary to protect Applicant's and SDG&E's employees, the public, and workmen during the time of construction. Applicant shall take all steps to protect property adjacent to the construction project from damage resulting from work specified and performed hereunder.

15.0 CHANGES IN WORK

Modification of the Specifications may be made in writing by mutual agreement between the Applicant and SDG&E. Requests for changes shall be directed to Planner. Such changes may cause delays in construction and require an engineering fee and revision to the Specifications. Costs resulting from work changes are the Applicant's responsibility under section 20.0. Minor changes for adverse field conditions may be approved in writing at the job site by the Inspector to facilitate construction.

16.0 PHASING FOR ENERGIZING (Applies only when cabling is installed by SDG&E)

When SDG&E and the Applicant agree before the completion of final Specifications, portions of the underground facilities may be phased *for* energizing before Final Acceptance provided the phasing does not delay completion of the entire project, SDG&E retains control of the energized portion, and the energized area is compatible with the system design and SDG&E's safety practices. Energizing portions of systems shall in no way relieve the Applicant of any of its duties.

17.0 DRAWINGS AND PRINTS

17.1 Applicant shall at all times maintain a set of the current Specifications at the job site, and these will at all times be available for Inspection by the Inspector who shall have access thereto on request. Applicant shall maintain at the job site any related project plans (e.g. alignment and finish grade of street improvements) approved by the governmental agencies having jurisdiction.

17.2 Prior to energizing, Applicant shall provide as-built drawings of facilities installed by the ~~Applicant or his contractor per SDG&E Standards.~~

18.0 RELATIONSHIP OF PARTIES

In assuming and performing the obligations of these Contract Documents, Applicant is acting as an independent contractor. Applicant shall assume full responsibility for the ownership, custody, and control of work and facilities to be constructed. All persons employed by Applicant in connection herewith shall be employees of Applicant. SDG&E's inspections, or any suggestions or objections made by SDG&E shall not constitute or be construed as an exercise of management or supervision over the work, nor shall it be construed as acceptance of the work, or any part thereof, as it progresses, nor shall it limit or affect the right of SDG&E to reject any part or all of the work when completed in case the same does not conform to Contract Documents.

19.0 FINAL ACCEPTANCE

Final acceptance by SDG&E will be made when Applicant has provided "as-built" drawings and satisfactorily completed all work and improvements as called for in the Contract Documents including reconciliation of materials. SDG&E shall notify Applicant in writing of final acceptance of the work. Failure or neglect on the part of SDG&E to reject inferior work during the construction period shall not be construed to imply acceptance of such work nor to preclude its right to reject it. Applicant shall be required to correct all defects which become evident at any time prior to final acceptance of Applicant's work by SDG&E. The cost of all such repairs, material, labor, and overheads shall be borne by Applicant. Ownership, custody, and control of the work and facilities shall pass to SDG&E only upon Final Acceptance.

20.0 WARRANTY

The Applicant expressly represents and warrants that all work performed and all materials used are free from defects of workmanship and conform to the Applicant's Contract obligations. This warranty shall commence upon Final Acceptance and end one year from that date. The Applicant shall pay the actual cost to SDG&E for any breach of this warranty corrected by SDG&E (including labor, material and overheads). If SDG&E is unable to collect for the work after 30 days from completion, the actual cost may be deducted from the Applicant's refundable monies on deposit with SDG&E. SDG&E may recover such cost by claim against the surety on the performance bond furnished by the Applicant.

21.0 PERMITS AND LICENSES

The Applicant shall obtain and pay for all permits and licenses required by governing agencies before starting any work. In the event any governmental agency imposes conditions which necessitate any changes in the trench or conduit system shown on the Specifications, the Applicant agrees not to proceed with any work affected by the conditions until SDG&E has completed the necessary redesign of construction drawings and new agreement documents have been signed by SDG&E and the Applicant. New agreements shall be the standard agreements in effect at the time the changes a made.

22.0 INDEMNITY

Applicant will indemnify, defend, hold SDG&E its employees and agents harmless from any and all claims, demands, loss, liability or expense (including attorneys' fees) for injury to or death of any person, or damage to or destruction of any property, in any way resulting from or connected with the performance of the work by Applicant's Contractor, its agents, employees, or subcontractors regardless of the negligence of SDG&E except in those cases where SDG&E has been solely negligent or SDG&E's willful misconduct caused the damage or injury. For purposes of this indemnification, SDG&E's inspections, objections or comments shall NOT be construed as an exercise of management or supervision.

23.0 PUBLIC RELATIONS

The Applicant shall maintain a good public image. Excess soil, litter and debris around the work area shall be removed during construction. Due precaution shall be observed to avoid damage to lawns, trees, shrubs, flowers, fences and other property. All landowners and tenants shall be notified in advance when work interferes with their use of walks, driveways, roadways or entrances. Any disagreements, problems or adverse criticism in connection with the work from area landowners, tenants, the general public or public officials shall be reported promptly to the Project Coordinator.

24.0 UNION LABOR IF APPLICABLE

If for any reason, any work is performed by Applicant upon facilities that are at the time of work by Applicant, owned and maintained by SDG&E, Applicant agrees that such work shall be done in compliance with the terms and conditions of that amended Agreement between SDG&E and Local Union 465, International Brotherhood of Electrical Workers, or such other agreements as may be entered into between the Applicants' Contractor and bonafide unions of international organizations affiliated with the American Federation of Labor and Congress of Industrial Organizations or other bonafide labor organizations.

25.0 RISK OF LOSS OR DAMAGE

The Applicant must take proper care to protect, and avoid any loss or damage to, material and/or equipment furnished by the Applicant or by SDG&E until Final Acceptance. Any damage, injury or loss shall be repaired, corrected or replaced by the Applicant at his sole expense. If the Applicant fails to do so, SDG&E may complete the work and deduct such costs from any amounts due or to become due to Applicant, or SDG&E may, at its option, recover such cost by claim against the surety on the performance bond furnished by Applicant.

26.0 NOTICE OR DEMAND

Any notices or demand which may or must be given by either party to the other hereunder unless otherwise specified shall be made in writing and shall be deemed to have been duly given when delivered by personal service, or 24 hours after it is deposited for mailing at San Diego, California, by certified United States mail, postage prepaid, addressed as follows, or to such other place as the parties may hereafter in writing direct:

TO UTILITY:

San Diego Gas & Electric Company
P.O. Box 1831
San Diego, CA 92112-4150

Attention: _____

TO APPLICANT:

Address _____

_____

_____

_____

Attention: _____

CUSTOMER

08/21/2017 15:40:34

SAN DIEGO GAS AND ELECTRIC
CONSTRUCTION ORDER FACE SHEET

MSTR WRK ORDR : 4084548 PROJ NOTIF : 300000143973 JOB NOTIF : 300000143981 NOTIF TYPE : DN NOTIF NAME : PALOMAR COLLEGE NORTH CAMPUS - NOTIF STATUS : OSNO IP

LOCATION : CITY : FB THOMAS BROTHERS : 1028-H6 WORK CENTER : CEDU_NRE

DESIGNED BY : Pete Balistreri PHONE : 7604807688 DATE ISSUED : _____

PROJECT MGR : Andrew Newcomb PHONE : 7604807731

APPROVED_BY : Rick Gardner DATE : 8/22/17

COMBO JOB : N

WORK REQ#	RULE	OPT	BILL CODE	ORDER TYPE	QTY	BUDGET	BUDGET %	TOTAL CAPITAL	BILLABLE CAPITAL	%	DEPREC CREDIT	NET CAPITAL	TOTAL O&M	BILLABLE O&M	%	NET O&M	CAL TRAN:
0001	E15	D	B	14	1	17218.3	68.7	55384	0	0.0	0	55384	0	0	0.0	0	0.0
0002	E16	D	A	14	1	17218.3	31.3	25209	0	0.0	0	25209	219	0	0.0	219	0.0
					SUBT	17218.3	100.0	80593	0	0.0	0	80593	219	0	0.0	219	0.0
						TOTAL	100.0	80593	0	0.0	0	80593	219	0	0.0	219	0.0

SCHED START DATE : ON SITE COMPLETED/APPROVED BY: DATE:

JOINT CONSTRUCTION
UG ELECTRIC : Y
GAS : N
TELCO : Y
MPOE : N
CATV : N
COMMENTS :

CONTRACTOR DESIGN : _____ APPLICANT DESIGN : _____

TELCO ENG : WILLIAM RIETMAN PHONE : 7604893631

CATV ENG : PAUL ROGERS PHONE : 6199210146

RIGHT-OF-WAY REQUIRED : Y
PERMITS REQUIRED : Y
TRAFFIC CONTROL REQ : Y
COMMENTS :

INFO :
AGENCY :
PLAN NO :

STREET RESURFACE MORATORIUM :

CUSTOMER OUTAGE REQUIRED : X

EXISTING FACILITIES INSTALLED ON :

MSTR WRK ORDR : 4084548 PROJ NOTIF : 300000143973 JOB NOTIF : 300000143981 NOTIF TYPE : DN NOTIF NAME : PALOMAR COLLEGE NORTH CAMPUS - UG EXT NOTIF STATUS : OSNO IP

RELATED CONSTRUCTION JOBS

JOB NOTIF #	JOB TYPE	JOB NAME	DESIGN #	PROJ NOTIF #	WORK ORDER #

MSTR WRK ORDR : 4084548 PROJ NOTIF : 300000143973 JOB NOTIF : 300000143981 NOTIF TYPE : DN NOTIF NAME : PALOMAR COLLEGE NORTH CAMPUS - UG EXT NOTIF STATUS : OSNO IP

STANDARD CONSTRUCTION NOTES

STAKED BY CUSTOMER.

UNLESS OTHERWISE NOTED, ALL TERMINATIONS OF PRIMARY ONDUIT RUNS AND SECONDARY CONDUIT RUNS OTHER THAN 2" IN ABOVE GROUND PADS WILL BE MADE WITH 36" RADIUS 90 DEGREE BENDS.TERMINATION OF 2" SECONDARY CONDUIT RUNS IN ABOVE GROUND PADS WILL BE MADE WITH 24" RADIUS 90 DEGREE BENDS. ALL HORIZONTAL BENDS WILL BE MADE 25' RADIUS SWEEPS UNLESS OTHERWISE NOTED. STANDARD CONDUIT BENDS TO BE USED. THE MINIMUM TERMINATION FOR ANY SERVICE CONDUIT IS A 24" RADIUS 90 DEGREE BEND.

V UNLESS OTHERWISE NOTED, IF SERVICES ARE NOT INSTALLED WITH THE MAIN SYSTEM, INSTALL CONDUIT STUBS FROM PADS AND HANDHOLES TO P/L. ALL STUBS REQUIRE CONDUIT STUB AND BALL MARKERS PER UG STANDARD 3377. SERVICE STUBS TO BE N/A

APPLICANT NOTES

IN THE EVENT OF CONFLICT BETWEEN THIS DRAWING AND THE GENERAL CONDITIONS, THE GENERAL CONDITIONS SHALL TAKE PRECEDENCE. A CPMPLETE SET OF UTILITY CONSTRUCTION SPECIFICATIONS IS AVAILABLE ON REQUEST.

CHECK CONFLICTS IN AREA PRIOR TO ANY EXCAVATION. CALL 'USA' AT 1-800-422-4133 48 HOURS IN ADVANCE OF ANY GRADING OR EXCAVATION IN THE VICINITY OF SDGE FACILITIES. IT IS NECESSARY TO OBTAIN AN EXCAVATION PERMIT FROM THE LOCAL AUTHORITY.

AFTER NOTIFICATION, THAT CONSTRUCTION CAN PROCEED, PHONE NOTIFICATION 48 HOURS PRIOR TO THE START OF CONSTRUCTION MUST BE MADE TO THAT CONSTRUCTION DEPARTMENT AT THE DISTRICT PHONE NUMBER INDICATED ON THE PREVIOUS PAGE.

FOR INSPECTION OF YOUR INSTALLATION AND ANY FIELD CHANGES PHONE SDGE INSPECTOR AT THE DISTRICT OPERATING CENTER.

V PRECONSTRUCTION CONFERENCE WITH DISTRICT OPERATING DEPARTMENT REQUIRED

V TRENCH FOOTAGE - APPLICANT: ALL SDGE: NONE

V GAS WORK ORDER IS APPLICANT INSTALLATION. WO# N/A.

SPECIFIC CONSTRUCTION NOTES

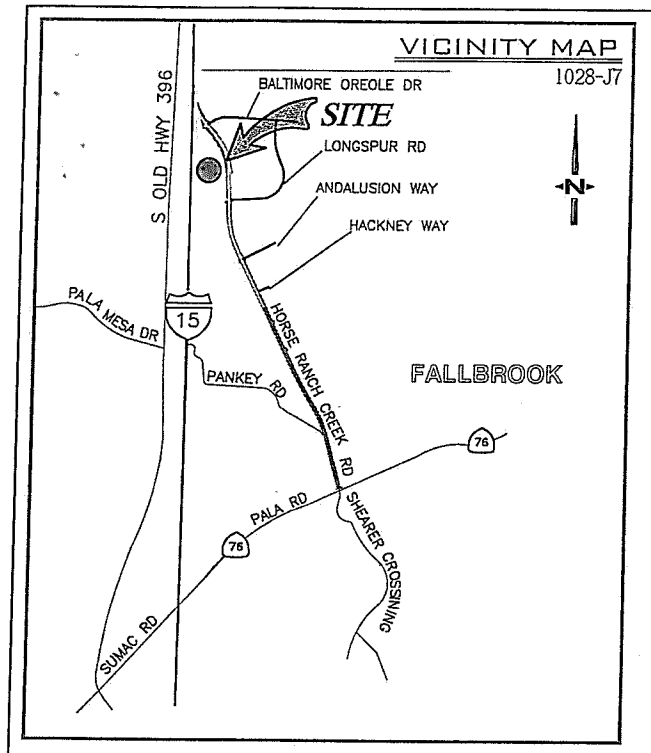
NO CONSTRUCTION NOTES FOUND

NOTES

- ☑ PER RULE 15 CUSTOMER IS RESPONSIBLE FOR:
  - ☑ TRENCH, EXCAVATION AND BACKFILL
  - ☑ CONDUIT (INCLUDING REDUCERS & ADAPTERS AT HANDHOLES)
  - ☑ SUBSTRUCTURES
- ☑ MAINTAIN A MINIMUM OF 5' WHEN PARALLELING WET UTILITIES AND 6" WHEN CROSSING
- ☑ MAINTAIN 5' CLEARANCE BETWEEN VEHICULAR TRAFFIC AND PADMOUNTED EQUIPMENT
- ☑ ALL HORIZONTAL BENDS TO BE 22 1/2° RADIUS PER STD. PG.3374 UNLESS OTHERWISE NOTED
- ☑ IT IS THE CUSTOMER'S RESPONSIBILITY TO PROVIDE TRENCH AND CONDUIT TO THE ENERGIZED SOURCE. EMPTY CONDUIT STUBS ARE INSTALLED FOR THE FUTURE USE OF THE UTILITY. IF THE STUB IS UNUSABLE, THE CUSTOMER MAY CLEAN OR REPAIR THE STUB, OTHERWISE, INSTALL NEW TRENCH AND CONDUIT TO THE SOURCE.
- ☑ CUSTOMER IS RESPONSIBLE TO PROVIDE ALL RED STUB MARKERS AND THE BURIED BALL MARKERS AT EACH SERVICE STUB LOCATION.
- ☑ 24 HOUR ALL WEATHER LINE TRUCK ACCESS REQUIRED TO ALL CABLE POLES & SUBSTRUCTURES
- ☑ CUSTOMER REP:
  NAME: ROGER GORDON
  COMPANY: .....
  PHONE: 858-449-3825

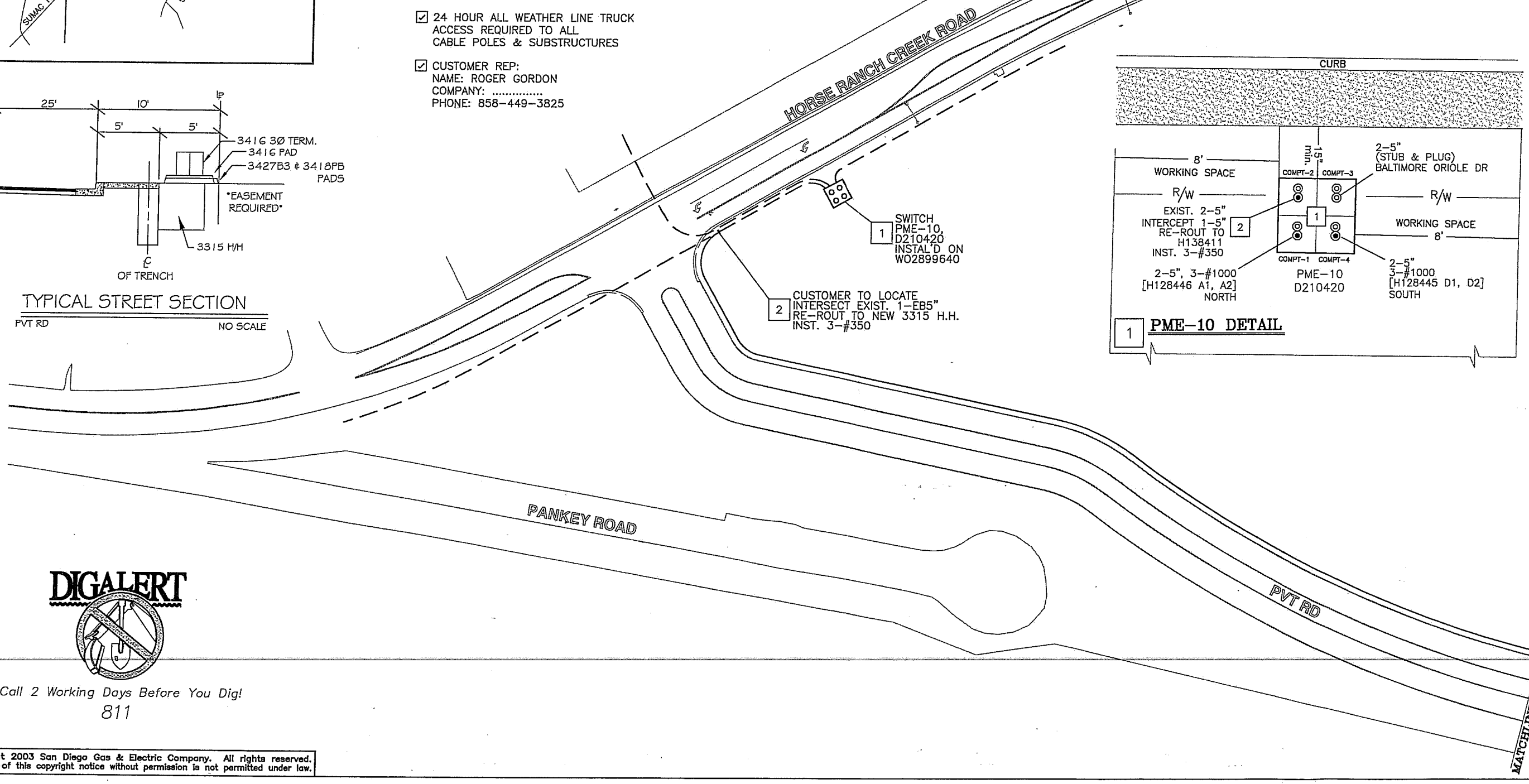
VICINITY MAP

1028-J7



TYPICAL STREET SECTION

PVT RD NO SCALE



1 PME-10 DETAIL

DIGALERT

Call 2 Working Days Before You Dig!

811

PALOMAR COLLEGE NORTH CAMPUS

SDGE SAN DIEGO GAS & ELECTRIC
ELECTRIC CONSTRUCTION ORDER
OH/UG BASE DRAWING

CONSTRUCTION ORDER NO. 3...143981

DESIGNED BY PETE BALISTRERI

PLOT DATE 8/16/17

PROJECT NO. 30000143973

Cust. Proj. Pl. (NEWCOMB ANDREW 760.480.7731)

REV/SUPP

SHT 1 OF 3

MATCHLINE SEE SHEET 1 OF 2

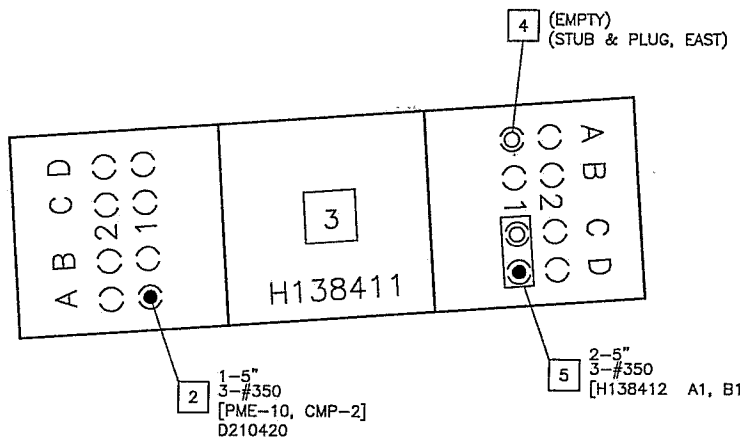
HORSE RANCH CREEK ROAD

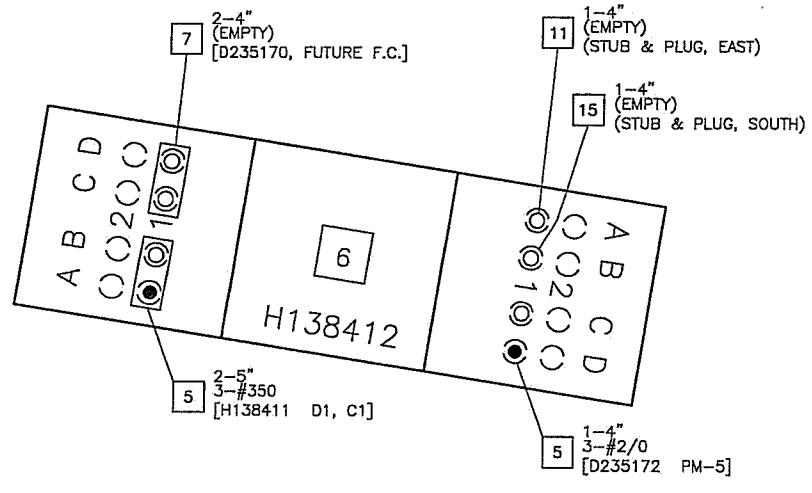
N

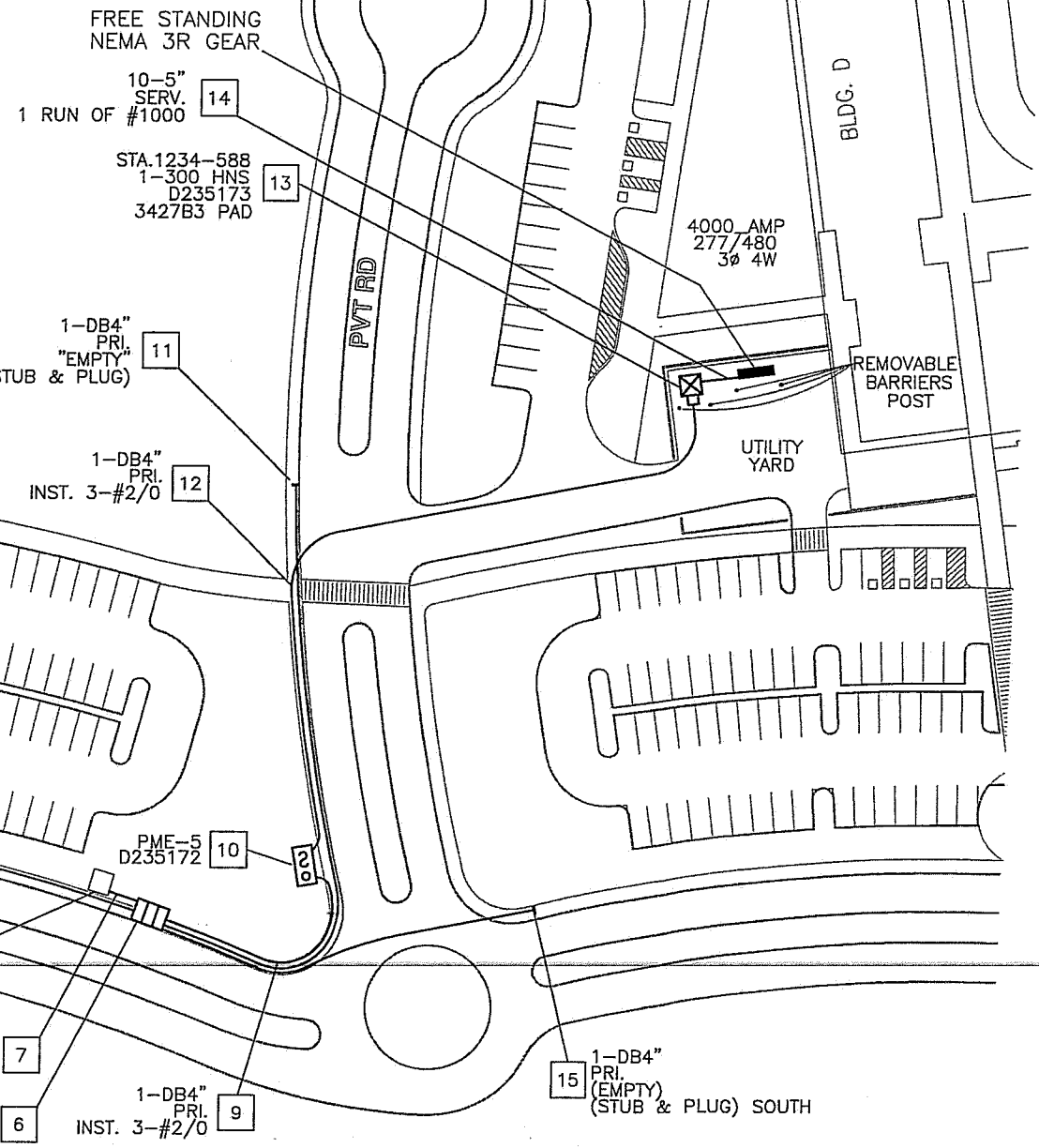
SCALE 0 40'

NOTE: AT LOC. 8
CUSTOMER TO SUPPLY 3/4" PLAYWOOD COVER 36' X 18" AND BOLT TO PAD USING SDG&E SUPPLIED PENTA-BOLTS

NOTE:
CUSTOMER TO SUBMIT SWETCH GEAR DRAWINGS TO SDG&E, FOR APPROVAL STANDARDS DEPT.







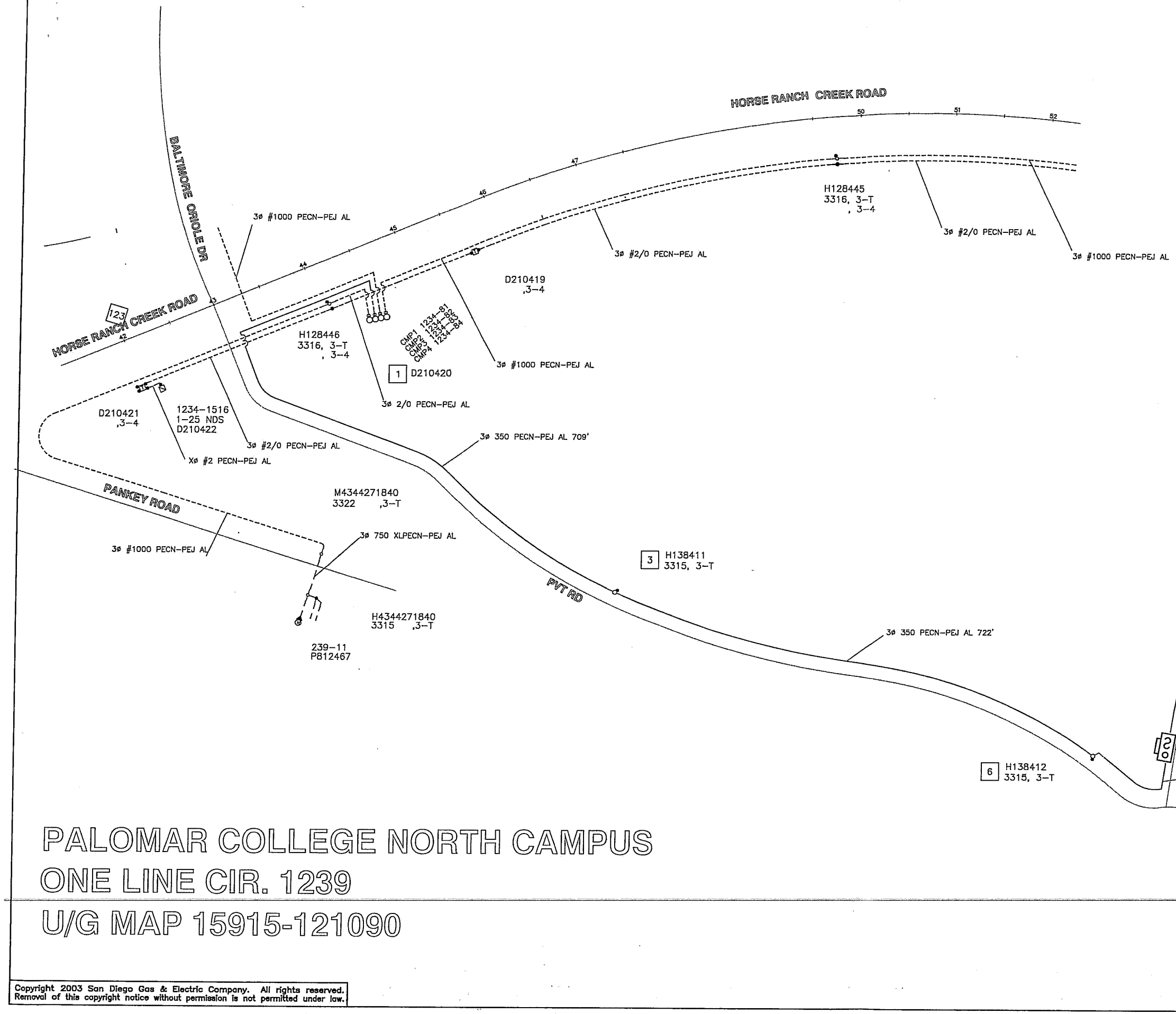
PALOMAR COLLEGE NORTH CAMPUS

SDGE SAN DIEGO GAS & ELECTRIC
ELECTRIC CONSTRUCTION ORDER
OH/UG BASE DRAWING

DESIGNED BY PETE BALISTRERI
PLOT DATE 8/16/17
PROJECT NO. 30000143973
CONSTRUCTION ORDER NO. 3...143981
REV/SUPP
SHT 2 OF 3

Cust. Proj. Pl. (NEWCOMB ANDREW 760.480.7731)

PALOMAR COLLEGE NORTH CAMPUS
ONE LINE CIR. 1239
U/G MAP 15915-121090



ONE LINE PALOMAR COLLEGE NORTH CAMPUS

SDGE SAN DIEGO GAS & ELECTRIC
ELECTRIC CONSTRUCTION ORDER
OH/UG BASE DRAWING

DESIGNED BY PETE BALISTRERI
PLOT DATE 8/16/17
PROJECT NO. 30000143973
CONSTRUCTION ORDER NO. 3...143981
REV/SUPP
SHT 3 OF 3

Cust. Proj. Pl. (NEWCOMB ANDREW 760.480.7731) DESIGN 80165985

09/06/2017 10:51:17

SAN DIEGO GAS AND ELECTRIC
CONSTRUCTION ORDER - CUSTOMER COPY

DESIGN NUMBER: 80165985

WORK ORDER: STATUS: OSNO PROJ NOTIF: 300000143973 JOB NOTIF:300000143981 JOB TYPE:DN-UD MCU ORDER#: 4084548

START DT: 04/04/2017 END DT: 12/31/2017 JOB NAME: PALOMAR COLLEGE NORTH CAMPUS - UG EXT NO. OF LOCATIONS: 15

LOCATION: ADDRESS: 35090 HORSE RANCH CREEK RD

DISTRICT:NRE CITY: FB MAIN WORK CENTER: CPD NORTHEAST ELEC UG THOMAS BROS:1028-H6
EXISTING FACILITIES INSTALLED ON:

CUSTOMER CONTACT: ROGER GORDON PHONE:858-449-3825 RELATED JOB NOTIFICATION:

DESIGNED BY:Balistreri Pete PHONE: 7604807688 DATE ISSUED: _____
JOB COORD:Frakes Susan PHONE:7604807683 PROJ MGR:Newcomb Andrew PHONE:7604807731

ONE-WAY TRAVEL TIME: 0.0000 YARD TIME: 1.2000 TRAVEL YARD FACTOR: 0.1765

LOCATION: 0001 LOCATION DESCRIPTION: Location 0001
ADDRESS : DISTRICT: NRE LOCATION 1 OF 15

WRK FUN	CU ID	STOCK	DESCRIPTION	QTY RQD	UM	ACT QTY	WRK RSP	MAT RSP	ACCT TRMT	STAN PAGE	INST/APP BY	DATE

NO DESIGN UNITS FOR THIS LOCATION

WRK FUN FAC CODE DESC EXIST TAG : NEW TAG:

LOC 001 ☐ COMPLETED ☐ PARTIALLY COMPLETED ☐ ENERGIZED

AS-BUILT RECORDED BY: _____ DATE: _____ MATERIAL CHECK BY: _____ DATE: _____

SAN DIEGO GAS AND ELECTRIC
CONSTRUCTION ORDER - CUSTOMER COPY

DESIGN NUMBER: 80165985

WORK ORDER:
PROJ NOTIF:300000143973 JOB NOTIF:300000143981 JOB TYPE:DN-UD JOB NAME:PALOMAR COLLEGE NORTH CAMPUS -

STATUS:OSNO
DESIGNED BY: Balistreri Pete PHONE: 7604807688

LOCATION: 0002 LOCATION DESCRIPTION: Location 0002 DISTRICT: NRE NO. OF LOCATIONS: 2 OF15
ADDRESS :

WRK FUN	CU ID	STOCK	DESCRIPTION	QTY RQD	UM	ACT QTY	WRK RSP	MAT RSP	ACCT TRMT	STAN PAGE	INST/APP BY	DATE
I-N-S	TR/C-P		PRIMARY CUSTOMER TRENCH	687	FT		C			3370.1		
		X20042	DESIGN ONLY-PRI, SEC, GAS ONLY TRNCH BY	687	FT			C				
I-N-S	SHD--C		SHADE TRENCH WITH SAND - CUSTOMER	687	FT		C			D7403		
I-N-S	1DB5SL		1-5 IN DB CONDUIT SLURRY ENCASED	627	FT		C			3376.1		
		S249728	CONDUIT, DIRECT BURIAL, 5" IPS, 100DB	627	FT			C				
		S656400	SLURRY MIX, 1 SACK SAND	10	YD			C				
I-N-S	1-5SLS		1-5 IN DB 22.5 D 25 FT R SLURRY ENCASED	6	EA		C			3373.2		
		S321856	ELBOW, 5" IPS, 22 1/2 DEGREES, 25 FT	6	EA			C				
		S656400	SLURRY MIX, 1 SACK SAND	1	YD			C				

WRK FUN FAC CODE DESC EXIST TAG : NEW TAG:

LOC 002 ☐ COMPLETED ☐ PARTIALLY COMPLETED ☐ ENERGIZED

AS-BUILT RECORDED BY: _____ DATE: _____ MATERIAL CHECK BY: _____ DATE: _____

WORK ORDER: PROJ NOTIF:300000143973 JOB NOTIF:300000143981 JOB TYPE:DN-UD JOB NAME:PALOMAR COLLEGE NORTH CAMPUS -

STATUS:OSNO DESIGNED BY: Balistreri Pete PHONE: 7604807688

LOCATION: 0003 LOCATION DESCRIPTION: Location 0003 DISTRICT: NRE NO. OF LOCATIONS: 3 OF15
ADDRESS :

WRK FUN	CU ID	STOCK	DESCRIPTION	QTY RQD	UM	ACT QTY	WRK RSP	MAT RSP	ACCT TRMT	STAN PAGE	INST/APP BY	DATE
I-N-S	3315EC		HANDHOLE 3315 WITH PARKWAY COVER	1	EA		C			3315		
		S636040	STEEL FRAME COVER, 3315 LIP MOUNT	1	EA			C				
		S334356	ENCLOSURE, HANDHOLE BASE, CONCRETE	1	EA			C				
		S361354	FRAME, HANDHOLE PARKWAY	1	EA			C				
		S400306	HANDHOLE, W/PARKWAY COVER, 48"X 78"X72"	1	EA			C				
I-N-S	X15H-A		EXCAVATE 3315 HANDHOLE AVERAGE	1	EA		C			3315.4		
		S601600	RECYCLED MATERIALS THAT MEET GREENBOOK	1	TO			C				
I-N-S	AD-P-H		ADJUST HH TO GRADE (IN PKY OR NEW CONST)	1	EA		C					
		S248205	CONCRETE, 6-SACK (3/4" ROCK MIX)	1	YD			C				
I-N-S	RED5-4		CONDUIT BELL REDUCER DB 5 IN TO 4 IN	1	EA		C			3373.2		
		S573384	REDUCER, 5" TO 4" DIRECT BURIAL, IN	1	EA			C				

WRK FUN	FAC CODE	DESC	EXIST TAG :	NEW TAG:
				H138411
I-N-S	PH	PRIMARY HANDHOLE		H138411

LOC 003 ☐ COMPLETED ☐ PARTIALLY COMPLETED ☐ ENERGIZED

AS-BUILT RECORDED BY: _____ DATE: _____ MATERIAL CHECK BY: _____ DATE: _____

WORK ORDER:

PROJ NOTIF:300000143973 JOB NOTIF:300000143981 JOB TYPE:DN-UD JOB NAME:PALOMAR COLLEGE NORTH CAMPUS -

STATUS:OSNO

DESIGNED BY: Balistreri Pete PHONE: 7604807688

LOCATION: 0004 LOCATION DESCRIPTION: Location 0004
ADDRESS :

DISTRICT: NRE NO. OF LOCATIONS: 4 OF15

WRK FUN	CU ID	STOCK	DESCRIPTION	QTY RQD	UM	ACT QTY	WRK RSP	MAT RSP	ACCT TRMT	STAN PAGE	INST/APP BY	DATE
I-N-S	TR/C-P		PRIMARY CUSTOMER TRENCH	20	FT		C			3370.1		
		X20042	DESIGN ONLY-PRI, SEC, GAS ONLY TRNCH BY	20	FT			C				
I-N-S	SHD-C		SHADE TRENCH WITH SAND - CUSTOMER	20	FT		C			D7403		
I-N-S	1DB4-P		1-4 IN DB CONDUIT PRI	25	FT		C			3373.1		
		S249710	CONDUIT, 4" DIAMETER, PVC, DB-100, 20FT	25	FT			C				
I-N-S	1DB4PS		1-4 IN DB 22.5 D 25 FT R BEND PRI	3	EA		C			3373.2		
		S321826	SWEEP 4" DIAMETER, PVC, DB-100, 22-1/2	3	EA			C				
I-N-S	STUB/M		STUB MARKER FOR UNDERGROUND CONDUIT	1	EA		C			3377.1		
		S476302	MARKER BURIED POWER CABLE, RED	1	EA			C				
		S476494	MARKER, BALL, E.F.M.S	1	EA			C				
I-N-S	PLUG-4		CONDUIT PLUG 4 IN	1	EA		C			3373.2		
		S544704	PLUG 4" PVC CONDUIT WITH PULL ROPE	1	EA			C				

WRK FUN FAC CODE DESC EXIST TAG : NEW TAG:

LOC 004 ☐ COMPLETED ☐ PARTIALLY COMPLETED ☐ ENERGIZED

AS-BUILT RECORDED BY: _____ DATE: _____ MATERIAL CHECK BY: _____ DATE: _____

WORK ORDER: PROJ NOTIF:300000143973 JOB NOTIF:300000143981 JOB TYPE:DN-UD JOB NAME:PALOMAR COLLEGE NORTH CAMPUS -

STATUS:OSNO DESIGNED BY: Balistreri Pete PHONE: 7604807688

LOCATION: 0005 LOCATION DESCRIPTION: Location 0005 DISTRICT: NRE NO. OF LOCATIONS: 5 OF15
ADDRESS :

WRK FUN	CU ID	STOCK	DESCRIPTION	QTY RQD	UM	ACT QTY	WRK RSP	MAT RSP	ACCT TRMT	STAN PAGE	INST/APP BY	DATE
I-N-S	TR/C-P		PRIMARY CUSTOMER TRENCH	700	FT		C			3370.1		
		X20042	DESIGN ONLY-PRI, SEC, GAS ONLY TRNCH BY	700	FT			C				
I-N-S	SHD-C		SHADE TRENCH WITH SAND - CUSTOMER	700	FT		C			D7403		
I-N-S	2DB5SL		2-5 IN DB CONDUIT SLURRY ENCASED	680	FT		C			3376.1		
		S249728	CONDUIT, DIRECT BURIAL, 5" IPS, 100DB	1,360	FT			C				
		S656400	SLURRY MIX, 1 SACK SAND	22	YD			C				
I-N-S	1-5SLS		1-5 IN DB 22.5 D 25 FT R SLURRY ENCASED	4	EA		C			3373.2		
		S321856	ELBOW, 5" IPS, 22 1/2 DEGREES, 25 FT	4	EA			C				
		S656400	SLURRY MIX, 1 SACK SAND	1	YD			C				

WRK FUN FAC CODE DESC EXIST TAG : NEW TAG:

LOC 005 ☐ COMPLETED ☐ PARTIALLY COMPLETED ☐ ENERGIZED

AS-BUILT RECORDED BY: _____ DATE: _____ MATERIAL CHECK BY: _____ DATE: _____

WORK ORDER: PROJ NOTIF:300000143973 JOB NOTIF:300000143981 JOB TYPE:DN-UD JOB NAME:PALOMAR COLLEGE NORTH CAMPUS -

STATUS:OSNO DESIGNED BY: Balistreri Pete PHONE: 7604807688

LOCATION: 0006 LOCATION DESCRIPTION: Location 0006 DISTRICT: NRE NO. OF LOCATIONS: 6 OF15
ADDRESS :

WRK FUN	CU ID	STOCK	DESCRIPTION	QTY RQD	UM	ACT QTY	WRK RSP	MAT RSP	ACCT TRMT	STAN PAGE	INST/APP BY	DATE
I-N-S	3315PC		HANDHOLE 3315 WITH PARKWAY COVER	1	EA		C			3315		
		S636040	STEEL FRAME COVER, 3315 LIP MOUNT	1	EA			C				
		S334356	ENCLOSURE, HANDHOLE BASE, CONCRETE	1	EA			C				
		S361354	FRAME, HANDHOLE PARKWAY	1	EA			C				
		S400306	HANDHOLE, W/PARKWAY COVER, 48"X 78"X72"	1	EA			C				
I-N-S	X15H-A		EXCAVATE 3315 HANDHOLE AVERAGE	1	EA		C			3315.4		
		S601600	RECYCLED MATERIALS THAT MEET GREENBOOK	1	TO			C				
I-N-S	AD-P-H		ADJUST HH TO GRADE (IN PKY OR NEW CONST)	1	EA		C					
		S248205	CONCRETE, 6-SACK (3/4" ROCK MIX)	1	YD			C				
I-N-S	RED5-4		CONDUIT BELL REDUCER DB 5 IN TO 4 IN	4	EA		C			3373.2		
		S573384	REDUCER, 5" TO 4" DIRECT BURIAL, IN	4	EA			C				

WRK FUN	FAC CODE	DESC	EXIST TAG :	NEW TAG:
		PRIMARY HANDHOLE		H138412
I-N-S	PH	PRIMARY HANDHOLE		H138412

LOC 006 ☐ COMPLETED ☐ PARTIALLY COMPLETED ☐ ENERGIZED

AS-BUILT RECORDED BY: _____ DATE: _____ MATERIAL CHECK BY: _____ DATE: _____

WORK ORDER: PROJ NOTIF:300000143973 JOB NOTIF:300000143981 JOB TYPE:DN-UD JOB NAME:PALOMAR COLLEGE NORTH CAMPUS -

STATUS:OSNO DESIGNED BY: Balistreri Pete PHONE: 7604807688

LOCATION: 0007 LOCATION DESCRIPTION: Location 0007 DISTRICT: NRE NO. OF LOCATIONS: 7 OF15
ADDRESS :

WRK FUN	CU ID	STOCK	DESCRIPTION	QTY RQD	UM	ACT QTY	WRK RSP	MAT RSP	ACCT TRMT	STAN PAGE	INST/APP BY	DATE
I-N-S	1DB4-P		1-4 IN DB CONDUIT PRI	5	FT		C			3373.1		
		S249710	CONDUIT, 4" DIAMETER, PVC, DB-100, 20FT	5	FT			C				
I-N-S	1DB4-P		1-4 IN DB CONDUIT PRI	5	FT		C			3373.1		
		S249710	CONDUIT, 4" DIAMETER, PVC, DB-100, 20FT	5	FT			C				
I-N-S	1DB4PS		1-4 IN DB 22.5 D 25 FT R BEND PRI	4	EA		C			3373.2		
		S321826	SWEEP 4" DIAMETER, PVC, DB-100, 22-1/2	4	EA			C				

WRK FUN FAC CODE DESC EXIST TAG : NEW TAG:

LOC 007 ☐ COMPLETED ☐ PARTIALLY COMPLETED ☐ ENERGIZED

AS-BUILT RECORDED BY: _____ DATE: _____ MATERIAL CHECK BY: _____ DATE: _____

WORK ORDER: PROJ NOTIF:300000143973 JOB NOTIF:300000143981 JOB TYPE:DN-UD JOB NAME:PALOMAR COLLEGE NORTH CAMPUS -

STATUS:OSNO DESIGNED BY: Balistreri Pete PHONE: 7604807688

LOCATION: 0008 LOCATION DESCRIPTION: LOCATION 0008 DISTRICT: NRE NO. OF LOCATIONS: 8 OF15
ADDRESS :

WRK FUN	CU ID	STOCK	DESCRIPTION	QTY RQD	UM	ACT QTY	WRK RSP	MAT RSP	ACCT TRMT	STAN PAGE	INST/APP BY	DATE
I-N-S	1DB4-B		1-4 IN DB 90 D 36 IN R BEND PRI	2	EA		C			3373.2		
		S322082	ELBOW 4 INCH DIRECT BURIAL SCH 100	2	EA			C				
I-N-S	FC3PAD-1		(USE MACRO) PAD 3421 W/HH 3PH FUSE CAB	1	EA		C			3421.1		
		S514240	PAD, TRANSFORMER SINGLE PHASE,	1	EA			C				
I-N-S	FC3PAD-2		(USE MACRO) PAD 3421 W/HH 3PH FUSE CAB	1	EA		C			3421.1		
		S162426	BOX HANDHOLE, 17" X 30" X 12" BODY	1	EA			C				
I-N-S	PLUG-4		CONDUIT PLUG 4 IN	2	EA		C			3373.2		
		S544704	PLUG 4" PVC CONDUIT WITH PULL ROPE	2	EA			C				

WRK FUN	FAC CODE	DESC	EXIST TAG :	NEW TAG:
		PRIMARY HANDHOLE		D235170
I-N-S	PD	PAD		D235170

LOC 008 ☐ COMPLETED ☐ PARTIALLY COMPLETED ☐ ENERGIZED

AS-BUILT RECORDED BY: _____ DATE: _____ MATERIAL CHECK BY: _____ DATE: _____

WORK ORDER: PROJ NOTIF:300000143973 JOB NOTIF:300000143981 JOB TYPE:DN-UD JOB NAME:PALOMAR COLLEGE NORTH CAMPUS -

STATUS:OSNO DESIGNED BY: Balistreri Pete PHONE: 7604807688

LOCATION: 0009 LOCATION DESCRIPTION: Location 0009 DISTRICT: NRE NO. OF LOCATIONS: 9 OF15
ADDRESS :

WRK FUN	CU ID	STOCK	DESCRIPTION	QTY RQD	UM	ACT QTY	WRK RSP	MAT RSP	ACCT TRMT	STAN PAGE	INST/APP BY	DATE
I-N-S	TR/C-P		PRIMARY CUSTOMER TRENCH	40	FT		C			3370.1		
		X20042	DESIGN ONLY-PRI, SEC, GAS ONLY TRNCH BY	40	FT			C				
I-N-S	SHD--C		SHADE TRENCH WITH SAND - CUSTOMER	40	FT		C			D7403		
I-N-S	1DB4-P		1-4 IN DB CONDUIT PRI	55	FT		C			3373.1		
		S249710	CONDUIT, 4" DIAMETER, PVC, DB-100, 20FT	55	FT			C				
I-N-S	1DB4PS		1-4 IN DB 22.5 D 25 FT R BEND PRI	6	EA		C			3373.2		
		S321826	SWEEP 4" DIAMETER, PVC, DB-100, 22-1/2	6	EA			C				

WRK FUN FAC CODE DESC EXIST TAG : NEW TAG:

LOC 009 ☐ COMPLETED ☐ PARTIALLY COMPLETED ☐ ENERGIZED

AS-BUILT RECORDED BY: _____ DATE: _____ MATERIAL CHECK BY: _____ DATE: _____

WORK ORDER: PROJ NOTIF:300000143973 JOB NOTIF:300000143981 JOB TYPE:DN-UD JOB NAME:PALOMAR COLLEGE NORTH CAMPUS -

STATUS:OSNO DESIGNED BY: Balistreri Pete PHONE: 7604807688

LOCATION: 0010 LOCATION DESCRIPTION: Location 0010 DISTRICT: NRE NO. OF LOCATIONS:10 OF15
ADDRESS :

WRK FUN	CU ID	STOCK	DESCRIPTION	QTY RQD	UM	ACT QTY	WRK RSP	MAT RSP	ACCT TRMT	STAN PAGE	INST/APP BY	DATE
I-N-S	3418BP		3418 BOX PAD FOR PME 3 AND 5	1	EA		C			3418		
		S514040	PAD,SWITCH CABINET,FIBERGLASS,	1	EA			C				
I-N-S	TG-E-W		TRENCH GRD WIRE W/O RODS (EQUIP/SWI/HH)	1	EA		C			4510.1		
		S812816	WIRE, #2 AWG 7 STRAND BARE SOFT DRAWN	8	LB			C				
I-N-S	1DB4-B		1-4 IN DB 90 D 36 IN R BEND PRI	2	EA		C			3373.2		
		S322082	ELBOW 4 INCH DIRECT BURIAL SCH 100.	2	EA			C				

WRK FUN	FAC CODE	DESC	EXIST TAG :	NEW TAG:
		PAD		D235172
I-N-S	PD	PAD		D235172

LOC 010 ☐ COMPLETED ☐ PARTIALLY COMPLETED ☐ ENERGIZED

AS-BUILT RECORDED BY: _____ DATE: _____ MATERIAL CHECK BY: _____ DATE: _____

WORK ORDER: PROJ NOTIF:300000143973 JOB NOTIF:300000143981 JOB TYPE:DN-UD JOB NAME:PALOMAR COLLEGE NORTH CAMPUS -

STATUS:OSNO DESIGNED BY: Balistreri Pete PHONE: 7604807688

LOCATION: 0011 LOCATION DESCRIPTION: Location 0011 DISTRICT: NRE NO. OF LOCATIONS:11 OF15
ADDRESS :

WRK FUN	CU ID	STOCK	DESCRIPTION	QTY RQD	UM	ACT QTY	WRK RSP	MAT RSP	ACCT TRMT	STAN PAGE	INST/APP BY	DATE
I-N-S	TR/C-P		PRIMARY CUSTOMER TRENCH	30	FT		C			3370.1		
		X20042	DESIGN ONLY-PRI, SEC, GAS ONLY TRNCH BY	30	FT			C				
I-N-S	SHD--C		SHADE TRENCH WITH SAND - CUSTOMER	30	FT		C			D7403		
I-N-S	1DB4PS		1-4 IN DB 22.5 D 25 FT R BEND PRI	1	EA		C			3373.2		
		S321826	SWEEP 4" DIAMETER, PVC, DB-100, 22-1/2	1	EA			C				
I-N-S	STUB/M		STUB MARKER FOR UNDERGROUND CONDUIT	1	EA		C			3377.1		
		S476302	MARKER BURIED POWER CABLE, RED	1	EA			C				
		S476494	MARKER, BALL, E.F.M.S	1	EA			C				
I-N-S	PLUG-4		CONDUIT PLUG 4 IN	1	EA		C			3373.2		
		S544704	PLUG 4" PVC CONDUIT WITH PULL ROPE	1	EA			C				
I-N-S	1DB4-P		1-4 IN DB CONDUIT PRI	155	FT		C			3373.1		
		S249710	CONDUIT, 4" DIAMETER, PVC, DB-100, 20FT	155	FT			C				

WRK FUN FAC CODE DESC EXIST TAG : NEW TAG:

LOC 011 ☐ COMPLETED ☐ PARTIALLY COMPLETED ☐ ENERGIZED

AS-BUILT RECORDED BY: _____ DATE: _____ MATERIAL CHECK BY: _____ DATE: _____

WORK ORDER: PROJ NOTIF:300000143973 JOB NOTIF:300000143981 JOB TYPE:DN-UD JOB NAME:PALOMAR COLLEGE NORTH CAMPUS -

STATUS:OSNO DESIGNED BY: Balistreri Pete PHONE: 7604807688

LOCATION: 0012 LOCATION DESCRIPTION: Location 0012 DISTRICT: NRE NO. OF LOCATIONS:12 OF15
ADDRESS :

WRK FUN	CU ID	STOCK	DESCRIPTION	QTY RQD	UM	ACT QTY	WRK RSP	MAT RSP	ACCT TRMT	STAN PAGE	INST/APP BY	DATE
I-N-S	TR/C-P		PRIMARY CUSTOMER TRENCH	345	FT		C					
		X20042	DESIGN ONLY-PRI, SEC, GAS ONLY TRNCH BY	345	FT			C		3370.1		
I-N-S	SHD--C		SHADE TRENCH WITH SAND - CUSTOMER	345	FT		C			D7403		
I-N-S	1DB4-P		1-4 IN DB CONDUIT PRI	255	FT		C			3373.1		
		S249710	CONDUIT, 4" DIAMETER, PVC, DB-100, 20FT	255	FT			C				
I-N-S	1DB4PS		1-4 IN DB 22.5 D 25 FT R BEND PRI	9	EA		C			3373.2		
		S321826	SWEEP 4" DIAMETER, PVC, DB-100, 22-1/2	9	EA			C				

WRK FUN FAC CODE DESC EXIST TAG : NEW TAG:

LOC 012 ☐ COMPLETED ☐ PARTIALLY COMPLETED ☐ ENERGIZED

AS-BUILT RECORDED BY: _____ DATE: _____ MATERIAL CHECK BY: _____ DATE: _____

WORK ORDER: PROJ NOTIF:300000143973 JOB NOTIF:300000143981 JOB TYPE:DN-UD JOB NAME:PALOMAR COLLEGE NORTH CAMPUS -

STATUS:OSNO DESIGNED BY: Balistreri Pete PHONE: 7604807688

LOCATION: 0013 LOCATION DESCRIPTION: Location 0013 DISTRICT: NRE NO. OF LOCATIONS:13 OF15
ADDRESS :

WRK FUN	CU ID	STOCK	DESCRIPTION	QTY RQD	UM	ACT QTY	WRK RSP	MAT RSP	ACCT TRMT	STAN PAGE	INST/APP BY	DATE
I-N-S	1DB4-B		1-4 IN DB 90 D 36 IN R BEND PRI	1	EA		C			3373.2		
		S322082	ELBOW 4 INCH DIRECT BURIAL SCH 100	1	EA			C				
I-N-S	TG-T-W		TRENCH GRD WIRE W/O RODS (TRANS/CAP)	1	EA		C			4510.1		
		S812816	WIRE, #2 AWG 7 STRAND BARE SOFT DRAWN	8	LB			C				
I-N-S	10-5SB		10-5 IN DB SERV COND BENDS BY CUSTOMER	1	EA		C					
I-N-S	TB-PER		TRAFFIC BARRIER - PERMANENT	4	EA		C			3481.1		
		S248205	CONCRETE, 6-SACK (3/4" ROCK MIX)	2	YD			C				
		S537224	072913 PIPE, STL, 4" BARE, .188W	24	FT			C				
I-N-S	X27B3A		EXCAVATE 3427 PAD W/3 HH (3-PH XFMR) AVG	1	EA		C			3427.2		
		X30010	DESIGN ONLY-SHORING MATERIAL	25	EA			C				
I-N-S	3427B3		(MACRO) PAD 3427 3PH XFMR W/3 HH SECT	0	EA		C			3427.2		
I-N-S	3427B3-1		(USE MACRO)PAD 3427 3PH XFMR W/3 HH SECT	1	EA		C			3427.2		
		S514012	PAD, TRANSFORMER THREE PHASE	1	EA			C				
I-N-S	3427B3-2		(USE MACRO)PAD 3427 3PH XFMR W/3 HH SECT	1	EA		C			3427.2		
		S286843	COVER, HANDHOLE PARKWAY, GALV. STEEL	1	EA			C				
		S336210	EXTENSION, HANDHOLE PARKWAY FRAME	1	EA			C				
		S336212	EXTENSION, HANDHOLE SECTION, CONCRETE	2	EA			C				

WRK FUN	FAC CODE	DESC	EXIST TAG :	NEW TAG:
		PAD		D235173
I-N-S	PD	PAD		D235173

LOC 013 ☐ COMPLETED ☐ PARTIALLY COMPLETED ☐ ENERGIZED

AS-BUILT RECORDED BY: _____ DATE: _____ MATERIAL CHECK BY: _____ DATE: _____

WORK ORDER: PROJ NOTIF:300000143973 JOB NOTIF:300000143981 JOB TYPE:DN-UD JOB NAME:PALOMAR COLLEGE NORTH CAMPUS -

STATUS:OSNO DESIGNED BY: Balistreri Pete PHONE: 7604807688

LOCATION: 0014 LOCATION DESCRIPTION: Location 0014 DISTRICT: NRE NO. OF LOCATIONS:14 OF15
ADDRESS :

WRK FUN	CU ID	STOCK	DESCRIPTION	QTY RQD	UM	ACT QTY	WRK RSP	MAT RSP	ACCT TRMT	STAN PAGE	INST/APP BY	DATE
I-N-S	10-5SR	X20403	10-5 IN DB SERV COND RUN BY CUSTOMER	1	EA		C					
			DESIGN-5 IN DB SERV COND RUN BY CUSTOMER	1	FT			C				
I-N-S	TR/CSV		SERVICE CUSTOMER TRENCH	20	FT		C					
I-N-S	SHD-SC		SHADE SERVICE TRENCH W/SAND - CUSTOMER	20	FT		C					

WRK FUN FAC CODE DESC EXIST TAG : NEW TAG:

LOC 014 ☐ COMPLETED ☐ PARTIALLY COMPLETED ☐ ENERGIZED

AS-BUILT RECORDED BY: _____ DATE: _____ MATERIAL CHECK BY: _____ DATE: _____

WORK ORDER:

PROJ NOTIF:300000143973 JOB NOTIF:300000143981 JOB TYPE:DN-UD JOB NAME:PALOMAR COLLEGE NORTH CAMPUS -

STATUS:OSNO

DESIGNED BY: Balistreri Pete PHONE: 7604807688

LOCATION: 0015 LOCATION DESCRIPTION: Location 0015 DISTRICT: NRE NO. OF LOCATIONS:15 OF15
ADDRESS :

WRK FUN	CU ID	STOCK	DESCRIPTION	QTY RQD	UM	ACT QTY	WRK RSP	MAT RSP	ACCT TRMT	STAN PAGE	INST/APP BY	DATE
I-N-S	TR/C-P		PRIMARY CUSTOMER TRENCH	170	FT		C			3370.1		
		X20042	DESIGN ONLY-PRI, SEC, GAS ONLY TRNCH BY	170	FT			C				
I-N-S	SHD--C		SHADE TRENCH WITH SAND - CUSTOMER	170	FT		C			D7403		
I-N-S	1DB4-P		1-4 IN DB CONDUIT PRI	140	FT		C			3373.1		
		S249710	CONDUIT, 4" DIAMETER, PVC, DB-100, 20FT	140	FT			C				
I-N-S	1DB4PS		1-4 IN DB 22.5 D 25 FT R BEND PRI	3	EA		C			3373.2		
		S321826	SWEEP 4" DIAMETER, PVC, DB-100, 22-1/2	3	EA			C				
I-N-S	PLUG-4		CONDUIT PLUG 4 IN	1	EA		C			3373.2		
		S544704	PLUG 4" PVC CONDUIT WITH PULL ROPE	1	EA			C				
I-N-S	STUB/M		STUB MARKER FOR UNDERGROUND CONDUIT	1	EA		C			3377.1		
		S476302	MARKER BURIED POWER CABLE, RED	1	EA			C				
		S476494	MARKER, BALL, E.F.M.S	1	EA			C				

WRK FUN FAC CODE DESC EXIST TAG : NEW TAG:

LOC 015 ☐ COMPLETED ☐ PARTIALLY COMPLETED ☐ ENERGIZED

AS-BUILT RECORDED BY: _____ DATE: _____ MATERIAL CHECK BY: _____ DATE: _____

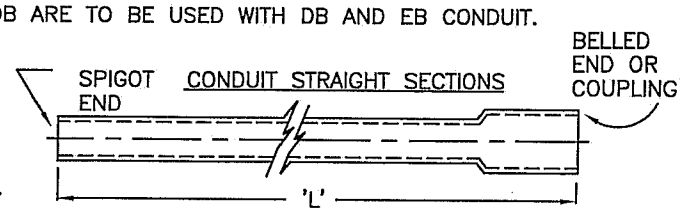
SCOPE: THIS STANDARD SHOWS THE CONDUIT AND FITTINGS USED TO CONSTRUCT UNDERGROUND CONDUIT SYSTEMS. CONDUIT AND FITTINGS IN THIS STANDARD SHALL BE USED IN BELOW–GROUND OR BRIDGE CELL APPLICATIONS.

NOTES:

(PVC) POLYVINYLCHLORIDE CONDUIT

- PVC CONDUIT SHALL BE GRAY OR BLACK IN COLOR. NO OTHER COLOR IS ACCEPTABLE FOR SDG&E CONDUIT SYSTEM.
- FOR SCHEDULE 40 AND SCHEDULE 80 ABOVE–GROUND COMPONENTS TO CONSTRUCT CABLE POLE RISERS, SEE UNDERGROUND STANDARD 4204.
- ALL 5" CONDUIT MUST BE ENCASED WITH CONCRETE SLURRY. (1–SACK MIX).
- DB CONDUIT IS REQUIRED FOR INSTALLATIONS REQUIRING DIRECT BURIED MATERIAL, i.e. SAND, DECOMPOSED GRANITE (DG), NATIVE, ETC.
- FOR DIRECT BURIED INSTALLATIONS, DB 60 IS REQUIRED FOR 2", 3" & 5" CONDUIT. DB 100 IS REQUIRED FOR 4" CONDUIT.
- ALL COUPLINGS, BENDS AND SWEEPS CLASSIFIED AS DB ARE TO BE USED WITH DB AND EB CONDUIT.
- DB = DIRECT BURIED CONDUIT.
- EB = ENCASED BURIED CONDUIT.
- THE SHELF LIFE FOR DB CONDUIT, BENDS, AND FITTINGS EXPOSED TO SUNLIGHT IS 6 MONTHS MAXIMUM. 2–#8 FROM A RISER POLE TO THE FIRST LOCATION SHALL BE INSTALLED IN 2" CONDUIT.

** – SCHEDULE 40 CONDUIT IS REQUIRED IN BRIDGE CELLS.



CONDUIT SIZE	TYPE	LENGTH 'L'	STOCK NUMBER	ASSEMBLY UNITS		
				1–SACK ENCASE W/SPACERS	PRIMARY	SEC/SERV
2"	DB 60	20'	249632	1EB2IN	1DB2–P	1DB2–S
3"	DB 60	20'	249664	1EB3IN	1DB3–P	1DB3–S
4"	DB 100	20'	249710	1EB4IN	1DB4–P	1DB4–S
5"	DB 60	20'	249728	1, 2DB5SL	–	1DB5–S
	** SCH40	10'	251408	–	S40–5"	S40–5"

(PE) POLYETHYLENE CONDUIT

CONDUIT SIZE	TYPE	COIL LENGTH	STOCK NUMBER	ASSEMBLY UNIT
1"	SDR 9	2000'	249630	1" PE
2"	SCH 40	2500'	252002	–
3"	SCH 40	1000'	252004	–
4"	SDR 15.5	500'	252006	–
5"	SCH 80	20' LENGTHS	252008	–

NOTES:

POLYETHYLENE CONDUIT SHALL BE BLACK OR BLACK WITH THREE EQUALLY SPACED RED STRIPS. NO OTHER COLOR IS ACCEPTABLE FOR THE SDG&E CONDUIT SYSTEM.

CORRUGATED POLYETHYLENE CONDUIT IS NOT ACCEPTABLE FOR THE SDG&E CONDUIT SYSTEM.

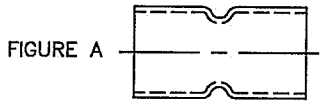
REFERENCE:

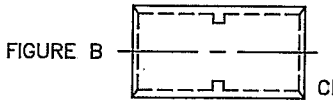
SEE STANDARD 3383 FOR SPLICING OR REPAIRING 1" POLYETHYLENE CONDUIT.

NOTES: ***

S/N 280384 SCH 40 PVC MAY BE USED AS A REPLACEMENT ON A TEMPORARY BASIS. (DEPENDS ON SUPPLIER OF COUPLING).

CONDUIT COUPLINGS





FIGURES A & B	
COUPLING CONDUIT SIZE	DB OR EB STOCK NUMBER
2"***	279872
3"	279904
4"	279936
5"	280032

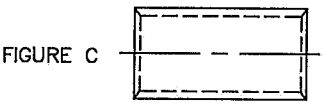
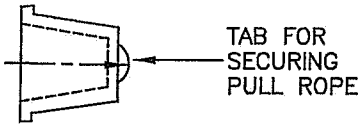


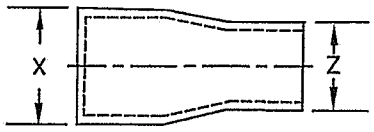
FIGURE C	
COUPLING CONDUIT SIZE	DB OR EB STOCK NUMBER
2"	–
3"	279920
4"	279952
5"	280064

CONDUIT PLUG



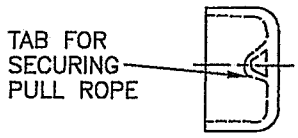
CONDUIT SIZE	STOCK NUMBER	ASSEMBLY UNITS
2"	544768	PLUG–2
3"	544800	PLUG–3
4"	544704	PLUG–4
5"	544736	PLUG–5

CONDUIT BELL REDUCER



CONDUIT SIZE X TO Z	STOCK NUMBER	ASSEMBLY UNITS
3"–2"	573376	RED3–2
4"–3"	573380	RED4–3
5"–4"	573384	RED5–4

CONDUIT END CAP

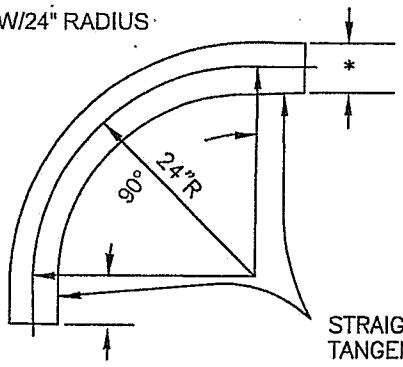


CONDUIT SIZE	STOCK NUMBER	ASSEMBLY UNITS
2"	203296	CAP–02
3"	203328	CAP–03
4"	203360	CAP–04
5"	203392	CAP–05

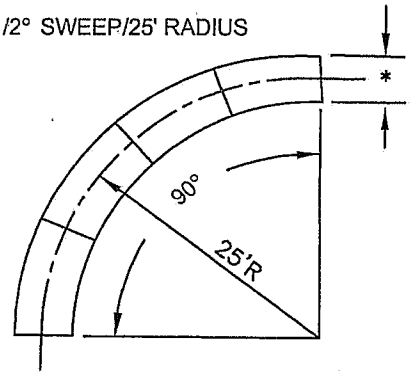
CONDUIT BENDS

(EXAMPLES)

90° ELBOW/24" RADIUS



22-1/2° SWEEP/25' RADIUS



BILL OF MATERIAL:

* NOMINAL CONDUIT SIZE	DEGREE OF CURVATURE	RADIUS OF CURVATURE	TYPE OF CONDUIT	STOCK NUMBER	ASSEMBLY UNITS		
					CONCRETE ENCASE	PRIMARY	SEC/SERV
2"	22-1/2°	25'–0"	DB 60	321808	1EB2–S	1DB2PS	1DB2SS
	45°	24"(SECONDARY ONLY)	DB 60	321920	–	–	1DB2S8
	45°	36"	DB 60	321810	1EB2–8	1DB2–8	–
	90°	24"(SECONDARY ONLY)	DB 60	321984	–	–	1DB2SB
	90°	36"	DB 60	321812	1EB2–B	1DB2–B	–
3"	11-1/4°	25'–0"	DB 60	321876	1EB3–C	1DB3–C	1DB3SC
	22-1/2°	25'–0"	DB 60	322144	1EB3–S	1DB3PS	1DB3SS
	45°	36"	DB 60	321878	1EB3–8	1DB3–8	1DB3S8
	90°	36"	DB 60	322048	1EB3–B	1DB3–B	1DB3SB
4"	11-1/4°	25'–0"	DB 100	321884	1EB4–C	1DB4–C	1DB4SC
	22-1/2°	25'–0"	DB 100	321826	1EB4–S	1DB4PS	1DB4SS
	45°	36"	DB 100	321942	1EB4–8	1DB4–8	1DB4S8
	90°	36"	DB 100	322082	1EB4–B	1DB4–B	1DB4SB
5"	11-1/4°	25'–0"	DB 60	321882	1EB5–C	1DB4–C	1DB5SC
	22-1/2°	25'–0"	DB 60	321856	1EB5–S	1DB5PS	1DB5SS
	45°	36"	DB 60	321960	1EB5–8	1DB5–8	1DB5S8
	90°	36"	DB 60	322112	1EB5–B	1DB5–B	1DB5SB

NOTES:

- HANDHOLE SECTIONS AND PARKWAY COVERS FROM DIFFERENT SUPPLIERS ARE INTERCHANGEABLE.
- CAST IRON COVERS FROM DIFFERENT SUPPLIERS ARE INTERCHANGEABLE.
- THE PREFERRED LOCATION FOR A 3315 HANDHOLE IS IN NONVEHICULAR TRAFFIC AREAS (BEHIND CURBS, PARKWAY POSITION, ETC.). USE A PARKWAY COVER IN THESE AREAS.
- HANDHOLES WITH A TRAFFIC COVER MAY BE INSTALLED IN AREAS WITH VEHICULAR TRAFFIC, BUT ONLY WHEN THERE IS NO NON-TRAFFIC LOCATION AVAILABLE.
- LIFTING ANCHORS ARE NOT TO BE USED FOR CABLE PULLING.
- 3315 HANDHOLES ARE DELIVERED BY THE SUPPLIER TO JOB SITE.

BILL OF MATERIAL FOR PARKWAY 3315 HANDHOLE:

ITEM	DESCRIPTION	QUANTITY	STOCK NUMBER	STOCK NUMBER	ASSEMBLY UNITS	
1	FRAME, PARKWAY, 12"	1	361354	COMPLETE PARKWAY HANDHOLE 400306	3315FO	COMPLETE PARKWAY HANDHOLE 3315PC
2	COVER, PARKWAY	1	286980		3315CA	
6	ENCLOSURE, 60" BASE	1	334356		--	
7	BOLT, PENTAHEAD, 1/2" X 2-1/2"	12	156012		--	
8	SEALANT, PLASTIC-MASTIC	AS REQUIRED	631872	--	--	
9	LUBRICANT EZ-1	AS REQUIRED	469764	--	--	
10	EXTENSION SECTION, SPECIAL 12" (FOR USE IN 3440 SWITCH PAD INST. OR FOR GRADING AND/OR ADDITIONAL HEADROOM)	AS REQUIRED	336246	--	3315X1	
11	EXTENSION SECTION, 24" (USE FOR GRADING AND/OR ADDITIONAL HEADROOM)	AS REQUIRED	336240	--	3315X2	
12	GRAVEL, 3/8"-3/4" *	AS REQUIRED	--	--	--	

BILL OF MATERIAL FOR TRAFFIC 3315 HANDHOLE:

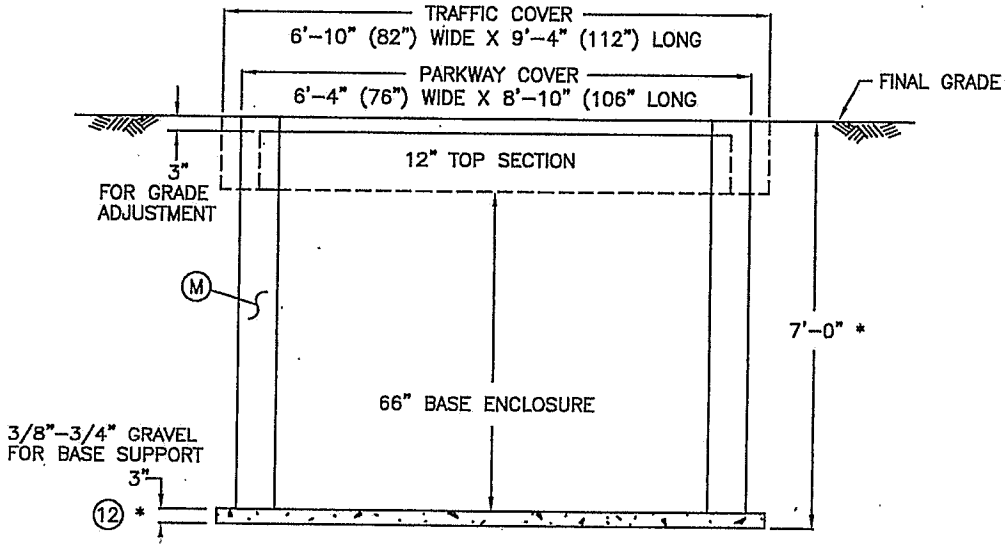
ITEM	DESCRIPTION	QUANTITY	STOCK NUMBER	STOCK NUMBER	ASSEMBLY UNITS	
3	COVER, NECKING, TRAFFIC, 12"	1	287738	COMPLETE TRAFFIC HANDHOLE 400308	3315TA	COMPLETE TRAFFIC HANDHOLE 3315TC
4	COVER, CONCRETE, TRAFFIC	1	287736			
5	COVER, CAST IRON, TRAFFIC (3 PC.)	1	287734			
6	ENCLOSURE, BASE, 60" (INSIDE DIMENSION)	1	334356		--	
7	BOLT, PENTAHEAD, 1/2" X 2 1/2"	12	156012		--	
	WASHER, 1/2", FLAT ROUND STAINLESS STEEL	12	799680		--	
8	SEALANT, PLASTIC-MASTIC	AS REQUIRED	631872			
9	LUBRICANT EZ-1	AS REQUIRED	469764	--	--	
10	EXTENSION SECTION, SPECIAL 12" (FOR USE IN 3440 SWITCH PAD INST. OR FOR GRADING AND/OR ADDITIONAL HEADROOM)	AS REQUIRED	336246	--	3315X1	
11	EXTENSION SECTION, 24" (USE FOR GRADING AND/OR ADDITIONAL HEADROOM)	AS REQUIRED	336240	--	3315X2	
12	GRAVEL, 3/8"-3/4" *	AS REQUIRED	--	--	--	

INSTALLATION:

A. ESTABLISH THE HANDHOLE LOCATION PAYING PARTICULAR ATTENTION TO FOREIGN UTILITY PLACEMENTS. RELOCATING THE HANDHOLE REQUIRES APPROVAL FROM PROJECT MANAGEMENT.

B. AFTER THE LOCATION IS ESTABLISHED, MARK OUT DIMENSIONS FOR THE EXCAVATION WIDTH, LENGTH AND DEPTH PER DRAWING BELOW. THE WIDTH AND LENGTH DIMENSIONS GIVEN, ALLOW AN EXTRA 8 INCHES FOR SETTING THE SUBSTRUCTURE.

EXCAVATION DIMENSIONS



*EXCAVATION DEPTH ALLOWS 3 INCHES FOR ADJUSTMENT TO FINAL GRADE AND AN ADDITIONAL 3 INCHES FOR REPLACEMENT OF GRAVEL AS BASE SUPPORT.

C. EXCAVATION IS NOW PREPARED FOR INSTALLATION OF SUBSTRUCTURE SECTIONS. PLACE PLASTIC-MASTIC SEALANT BETWEEN ALL SECTIONS. USE DOUBLE SEAL IF FIELD CONDITIONS INDICATE THAT WATER WILL PENETRATE THE JOINTS. DO NOT APPLY SEALANT UNDER THE TOP SECTION IF CONCRETE IS REQUIRED FOR GRADE ADJUSTMENT. ASSURE THE SUBSTRUCTURE WALLS ARE STRAIGHT AND THE FLOOR IS LEVEL.

D. TO DETERMINE FINAL GRADE, ONE OF THE FOLLOWING METHODS MAY BE USED: 1) WHEN CURB OR GRADE LEVEL IS ALREADY ESTABLISHED, MEASURE FROM THE TOP OF CURB OR GRADE OR 2) HAVE THE FIELD ENGINEER SET THE GRADE STAKES. AFTER GRADE LEVEL IS ESTABLISHED, SET A STRING LINE FOR CHECKING GRADE LEVEL.

F. ALIGN HANDHOLE COVER TO FINAL GRADE USING BRICKS OR WOODEN WEDGES. BEFORE POURING CONCRETE (4-SACK MIX WITH 3/8 INCH PEA GRAVEL OR AS REQUIRED BY CITY OR COUNTY CODES), FRAME THE INSIDE OPEN AREA BETWEEN SECTIONS SO CONCRETE CAN BE POURED FROM THE OUTSIDE OF THE TOP COVER SECTION. MAKE SURE THE BRICKS OR WOODEN WEDGES DO NOT SHOW FROM THE INSIDE ONCE THE CONCRETE IS POURED. THE INSIDE FRAME MAY BE OMITTED IF THE CONCRETE IS NOT TOO WET. IF FRAME IS OMITTED, TROWEL CONCRETE SMOOTH ON THE INSIDE.

G. INSTALL CONDUITS USING THE BOTTOM OUTSIDE (CLOSEST TO THE WALL) KNOCKOUTS FIRST.

(H) WHEN INSTALLING THE TRAFFIC COVER, PLACE THE OUTSIDE CAST IRON COVERS ON FIRST, THEN SLIDE THE CENTER CAST IRON COVER ON LAST. WHEN REMOVING CAST IRON COVERS, SLIDE CENTER COVER OFF FIRST. SEE DRAWING ON PAGE 3315.1.

(I) APPLY LUBRICANT (EZ-1) TO THE PENTAHEAD BOLTS WHEN SECURING THE COVERS TO REDUCE REMOVAL OR INSTALLATION DIFFICULTIES. TIGHTEN DOWN BOLTS WITH TORQUE WRENCH TO 30 FT./LBS. MIN., 40 FT./LBS. MAX.

NOTE:

(PP) WHEN TRAFFIC COVER IS REMOVED CHECK GASKET MATERIAL AND REPLACE AS NEEDED. SDG&E STOCK NUMBER (S341020).

REFERENCE:

(J) SEE STANDARD 3211 FOR INSTALLATION OF IDENTIFICATION TAG.

K. SEE STANDARD 3302 FOR SUBSTRUCTURE APPLICATIONS.

L. SEE STANDARD 3306 FOR INSTALLATION OF PLASTIC-MASTIC SEALANT.

(M) SEE STANDARD 3365 FOR SLURRY BACKFILL.

N. SEE STANDARD 3483 FOR MINIMUM OPERATING AND CLEARANCE REQUIREMENTS.

O. SEE STANDARD 3485 WHEN SETTING HANDHOLE ON A SLOPING GRADE.

P. SEE STANDARD 3486 FOR RETAINING WALL REQUIREMENTS AND CLEARANCES FROM REVERSE SUBGRADE RETAINING WALLS.

Q. SEE STANDARD 3605 FOR SUBSTRUCTURE USE AND LIMITATIONS REFERENCE SHEET (MAXIMUM NUMBER OF CABLES, CONNECTORS AND CONDUITS).

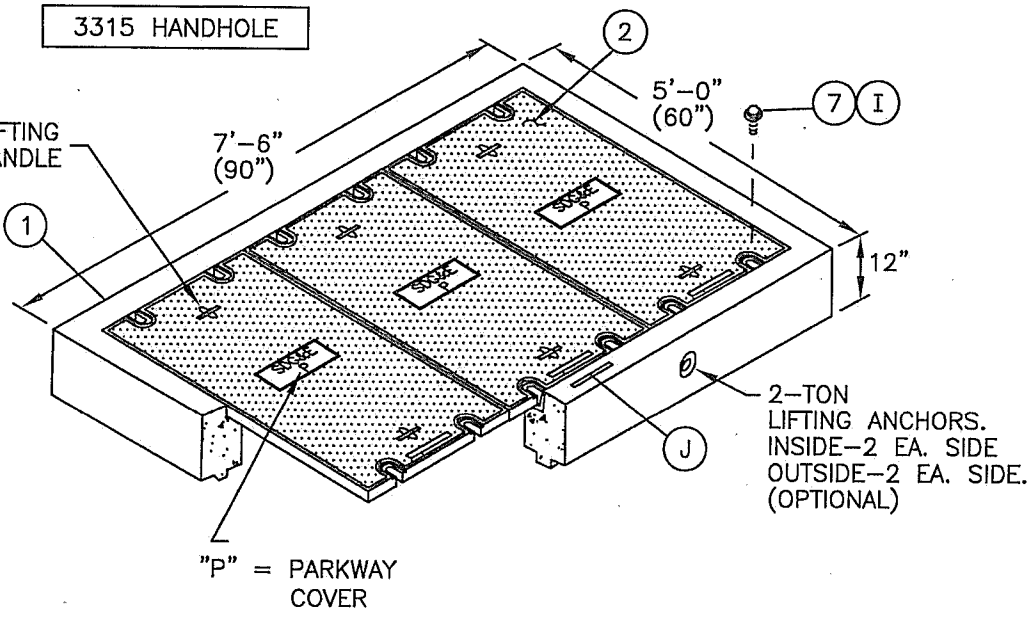
SERVICE GUIDE	☒ Indicates Latest Revision	Completely Revised	New Page	Information Removed

SDG&E ELECTRIC STANDARDS

3315.4	HANDHOLE EQUIPMENT ENCLOSURE (INSIDE DIMENSIONS – 4' X 6'-6")	REVISION DATE 1-25-06 APPD TR/JJ

SCOPE: THIS STANDARD SHOWS THE INSTALLATION AND MATERIAL REQUIREMENT FOR A 3315 HANDHOLE.

3315 HANDHOLE



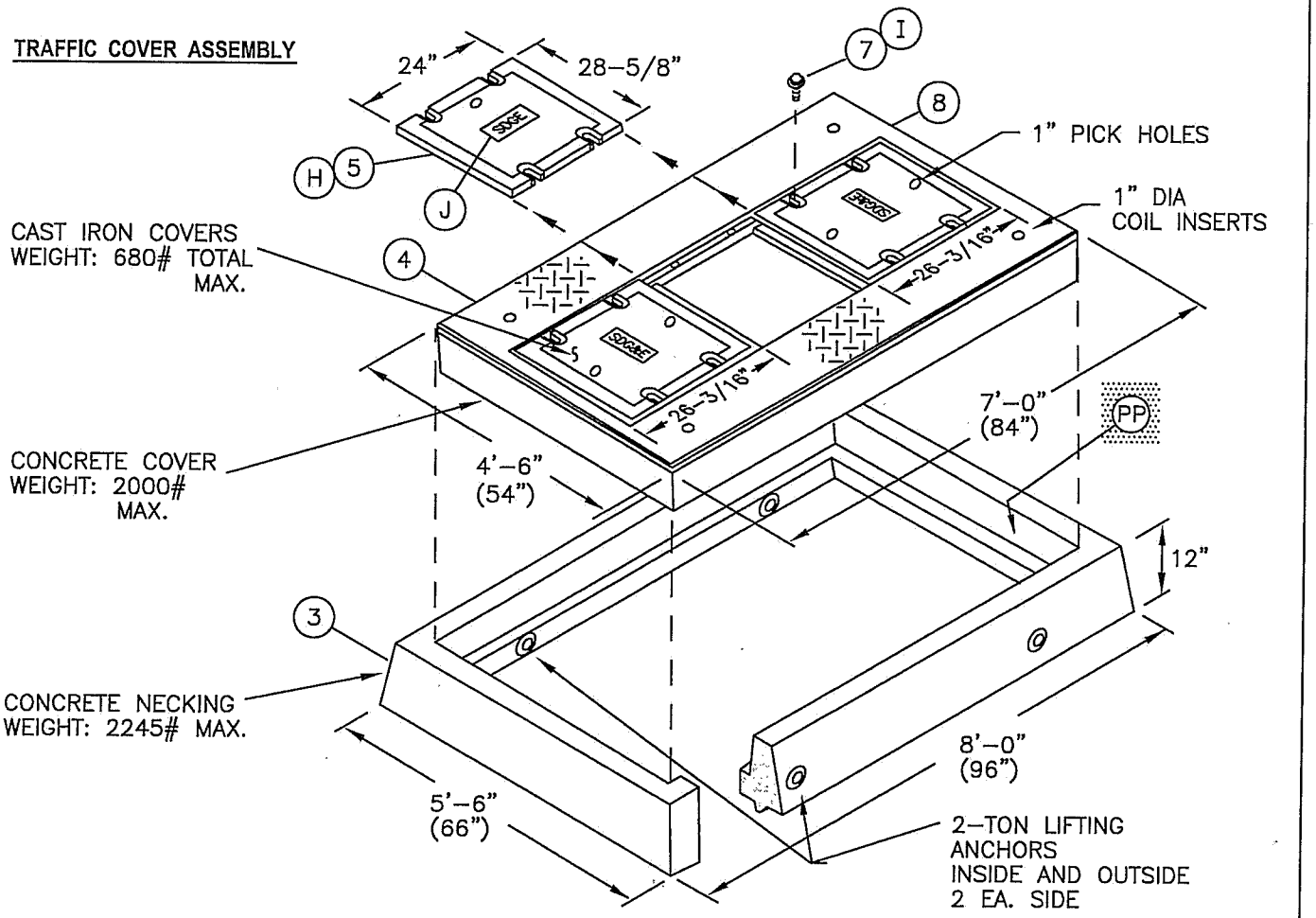
PARKWAY COVER ASSEMBLY

12" PARKWAY FRAME
W/O COVERS
WEIGHT: 1800# MAX.

STEEL COVERS
WEIGHT: 369# TOTAL MAX.

SLIP NOT COATING
REQUIRED

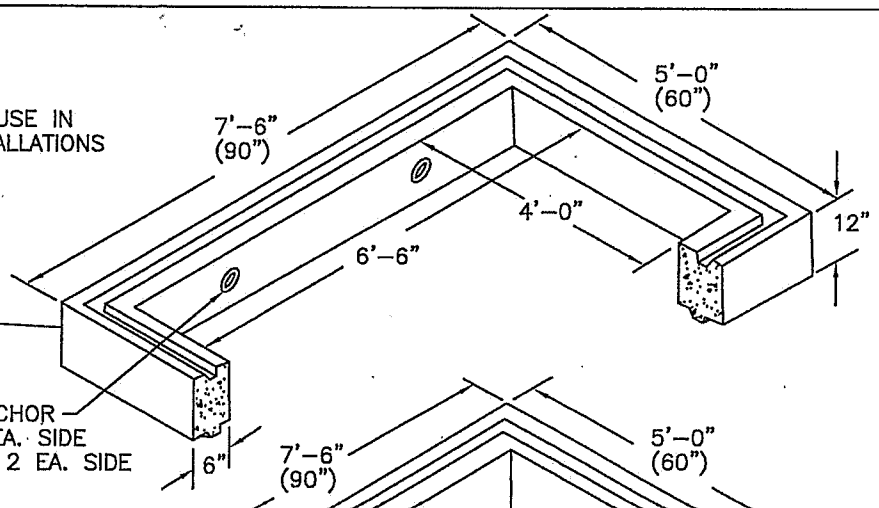
TRAFFIC COVER ASSEMBLY



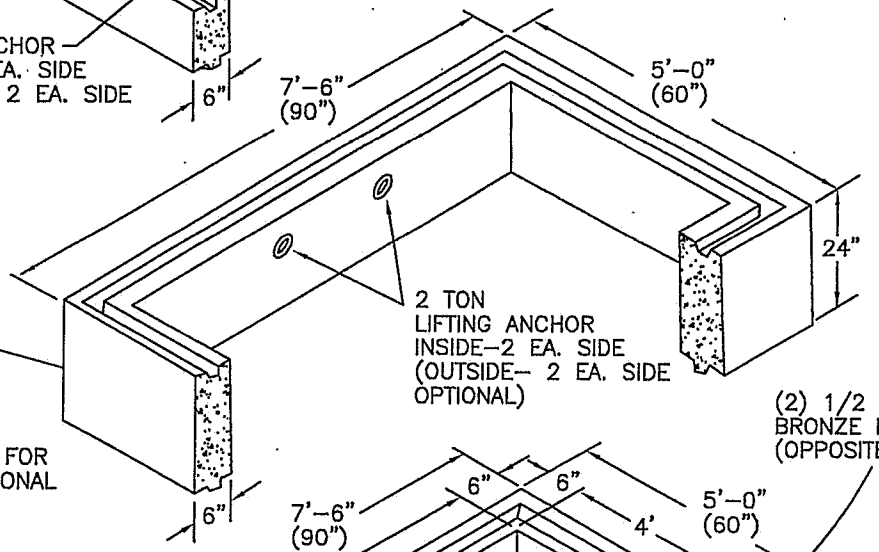
SERVICE GUIDE	☒ Indicates Latest Revision	Completely Revised	New Page	Information Removed

REVISION	SDG&E ELECTRIC STANDARDS	
DATE 1-8-07 APPD TR/JJ	HANDHOLE EQUIPMENT ENCLOSURE (INSIDE DIMENSIONS – 4' X 6'-6")	3315.1

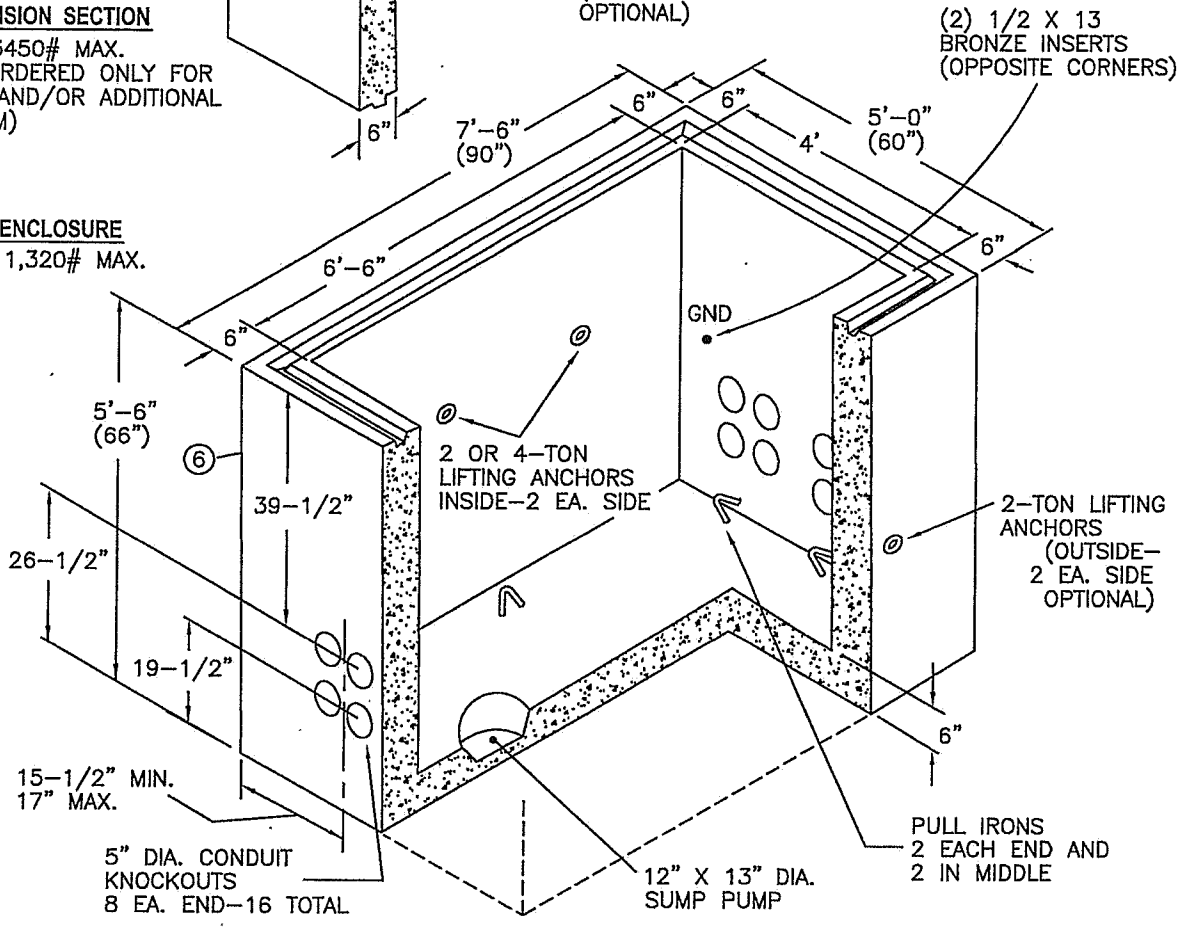
12" SPECIAL
EXTENSION SECTION
WEIGHT: 1725# MAX.
(TO BE ORDERED FOR USE IN 3440 SWITCH PAD INSTALLATIONS OR, FOR GRADING AND/OR ADDITIONAL HEADROOM)



24" EXTENSION SECTION
WEIGHT: 3450# MAX.
(TO BE ORDERED ONLY FOR GRADING AND/OR ADDITIONAL HEADROOM)



60" BASE ENCLOSURE
WEIGHT: 11,320# MAX.



SERVICE GUIDE	Indicates Latest Revision	Completely Revised	New Page	Information Removed

SDG&E ELECTRIC STANDARDS

3315.2	HANDHOLE EQUIPMENT ENCLOSURE (INSIDE DIMENSIONS – 4' x 6'–6")	REVISION DATE 1–1–2000 APPD RBT/VCL

SCOPE: THIS STANDARD SHOWS TYPICAL PLACEMENT OF UTILITIES WITHIN TRENCHES FOR DISTRIBUTION AND SERVICE IN DEDICATED R/W (STREET) AND PRIVATE PROPERTY, AND PROVIDES THE MINIMUM DEPTH AND CLEARANCE THAT MUST BE MAINTAINED BETWEEN VARIOUS UTILITIES OCCUPYING THE SAME TRENCH IN SAN DIEGO COUNTY.

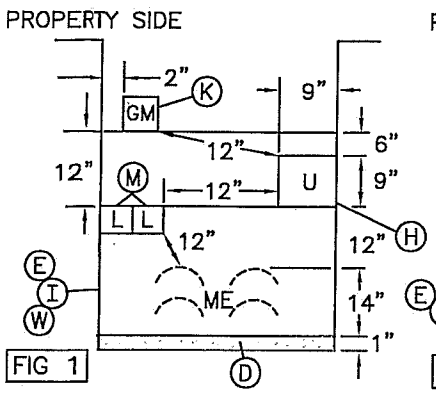


FIG 1

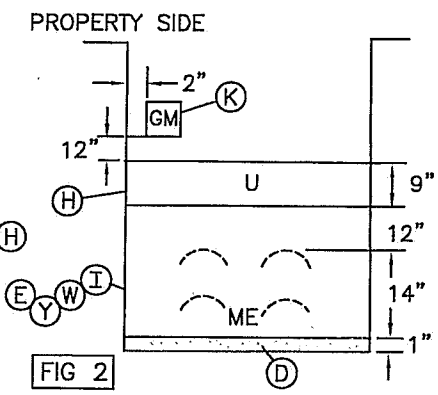


FIG 2

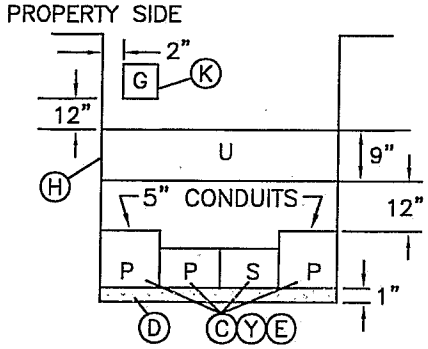


FIG 3 (SEE STANDARD 3376 FOR OTHER CONDUIT/TRENCH CONFIGURATIONS)

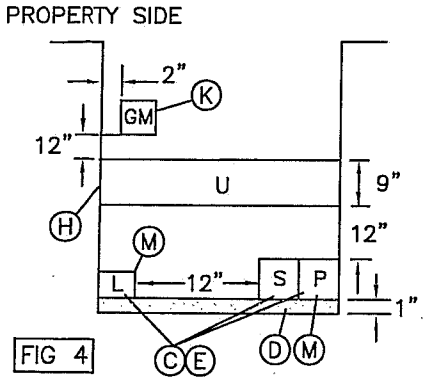


FIG 4

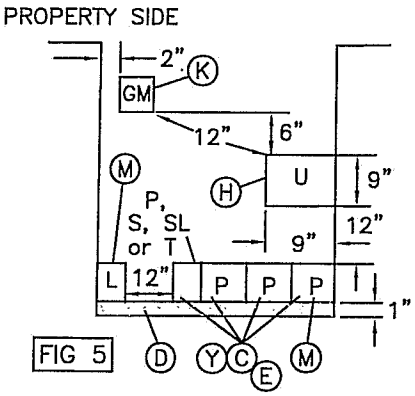


FIG 5

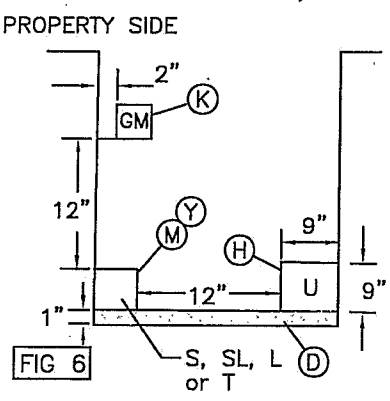


FIG 6

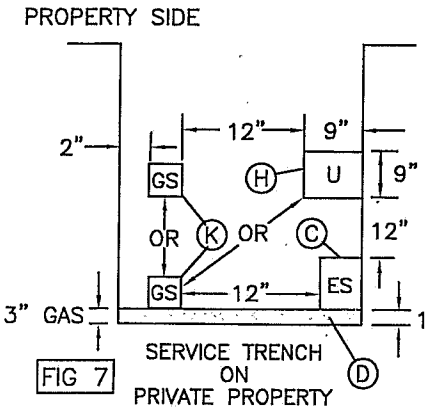


FIG 7

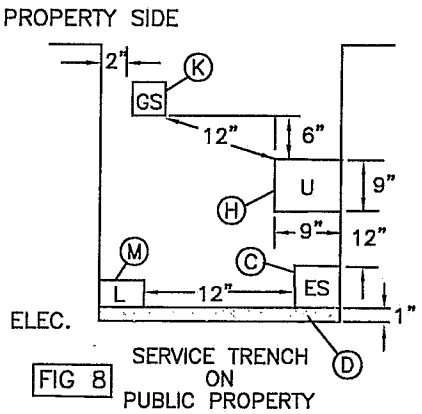


FIG 8

LEGEND	
GM	GAS MAIN
GS	GAS SERVICE
P	PRIMARY ELECTRIC
S	SECONDARY ELECTRIC
ES	ELECTRIC SERVICE
ME	MULTIPLE ELECTRIC (P OR S OR ES OR T, STACKED CONFIGURATION INCLUDING SPACERS AND 1-SACK CONCRETE SLURRY)
SL	SDG&E STREET LIGHT
L	FOREIGN UTILITY STREET LIGHT
U	FOREIGN UTILITY (TELCO, CATV)
T	SDG&E TELECOMMUNICATIONS

NOTES:

- DRAWINGS ARE NOT TO SCALE.
- SPACE ALLOTMENTS (OTHER THAN FOREIGN UTILITY) ARE 1/2 INCH LARGER THAN THE NOMINAL SIZE OF GAS MAIN, GAS SERVICE OR ELECTRIC CONDUIT. SEE INSTALLATION NOTE (H) FOR FOREIGN UTILITY SPACE ALLOTMENT.
- TYPICAL TRENCH SECTIONS ARE DESIGNED FOR INSTALLATIONS WHERE EACH OCCUPANT IS UTILIZING HIS ENTIRE SPACE ALLOTMENT. SIZE OF SPACE ALLOTMENTS MAY BE REDUCED OR ADDITIONAL ALLOTMENTS MAY BE ADDED PROVIDING MINIMUM COVER AND CLEARANCES ARE MAINTAINED AS LISTED ON PAGE 3370.2. ONLY ONE FOREIGN UTILITY SPACE ALLOTMENT FOR TELCO AND/OR CATV IS ALLOWED PER TRENCH. WIDTH AND DEPTH OF THE TRENCH MUST BE ADJUSTED ACCORDING TO SPACE ALLOTMENTS, MINIMUM CLEARANCES AND MINIMUM COVER.
- GAS PIPE REQUIRES A MINIMUM OF 12 INCHES RADIAL SEPARATION FROM ALL UTILITIES.

THE FOLLOWING CHARTS SHOW THE MINIMUM COVER FOR EACH UTILITY, THE MINIMUM SEPARATION BETWEEN SPACE ALLOTMENTS AND THE MAXIMUM SIZE FOR EACH SPACE ALLOTMENT. TO READ THE CHARTS, READ ACROSS AND DOWN UNTIL THE TWO JOIN IN A SQUARE, AND THAT IS THE DISTANCE REQUIRED BETWEEN THE TWO UTILITIES.

EXAMPLE

		VERTICAL			HORIZONTAL			
			ES		GS			
			↓		↓			
ES	ELECTRIC SERVICE	——	Ⓒ	——	12"			

UNDER VERTICAL, "ES" & "ES" JOIN AT Ⓒ WHICH REFERS TO INSTALLATION NOTE Ⓒ.

UNDER HORIZONTAL, "ES" & "GS" JOIN AT 12 INCHES WHICH WOULD BE THE DISTANCE REQUIRED FROM THE OUTER EDGE OF THE ELECTRIC SERVICE (SPACE ALLOTMENT) TO THE OUTER EDGE OF GAS SERVICE (SPACE ALLOTMENT).

MAIN TRENCH, [SERVICE TRENCH PUBLIC PROPERTY] (MINIMUM SEPARATION FROM)

		VERTICAL								HORIZONTAL									
		GM GS	P	S	ES	SL	ME	L	U	GM GS	P	S	ES	SL	ME	L	U	*MIN. COVER	FACILITY SPACE ALLOTMENT (MAX)
GM GS	GAS MAIN (D)(K)(N)(P) GAS SERVICE (O)(G)(U)(V)	—	12"	12"	12"	12"	12"	12"	Ⓗ	—	—	—	—	—	—	—	Ⓗ	30" MIN 42" MAX	4–/2"x4–1/2"
P	(U)(V)(D)(M) PRIMARY ELECTRIC (P)(W)	12"	Ⓒ	Ⓒ	Ⓒ	Ⓒ	Ⓒ	—	12"	—	Ⓒ	Ⓒ	Ⓒ	Ⓒ	Ⓒ	12"	—	30"	5–1/2"x5–1/2"
S	(U)(V)(D) SECONDARY ELECTRIC (P)(W)	12"	Ⓒ	Ⓒ	Ⓒ	Ⓒ	Ⓒ	—	12"	—	Ⓒ	Ⓒ	Ⓒ	Ⓒ	Ⓒ	12"	12"	30"	5–1/2"x5–1/2"
ES	(U)(V)(D) ELECTRIC SERVICE (P)(W)	12"	Ⓒ	Ⓒ	Ⓒ	Ⓒ	Ⓒ	—	12"	—	Ⓒ	Ⓒ	Ⓒ	Ⓒ	Ⓒ	12"	12"	30"	5–/2"x5–1/2"
SL	(U)(V)(D)(L)(M) SDG&E STREET LIGHT (P)(W)	12"	Ⓒ	Ⓒ	Ⓒ	Ⓒ	Ⓒ	—	12"	—	Ⓒ	Ⓒ	Ⓒ	Ⓒ	Ⓒ	12"	12"	30"	2–1/2"x2–1/2"
ME	(H)(W)(I)(R)(P) MULTIPLE ELECTRIC	12"	Ⓒ	Ⓒ	Ⓒ	Ⓒ	Ⓒ	12"	12"	—	Ⓒ	Ⓒ	Ⓒ	Ⓒ	Ⓒ	—	—	30"	18" x 14" (4 DUCTS)
L	FOREIGN UTILITY STREET LIGHT (U)(F)(M)(V)	12"	—	—	—	—	12"	—	12"	—	12"	12"	12"	12"	—	1" or less	12"	24"	2–1/2"x2–1/2"
U	FOREIGN UTILITY (TELCO, CATV) (F)(H)(J)(U)(V)	Ⓗ	12"	12"	12"	12"	12"	12"	—	Ⓗ	—	12"	12"	12"	—	12"	—	24"	9" x 24"
T	SDG&E TELECOMMUNICATIONS (C)(Y)	12"	Ⓒ	Ⓒ	Ⓒ	Ⓒ	Ⓒ	—	12"	—	Ⓒ	Ⓒ	Ⓒ	Ⓒ	Ⓒ	12"	12"	30"	4–1/2"x4–1/2"

* ALL MINIMUM COVER DEPTHS MEASURED FROM FINAL GRADE. REDUCED DEPTHS IN NOTE Ⓑ ARE LESSER DEPTHS THAN WHAT IS SHOWN UNDER "MINIMUM COVER".

— NOT ALLOWED.

SERVICE TRENCH PRIVATE PROPERTY (MINIMUM SEPARATION FROM)

		VERTICAL					HORIZONTAL						
		GS	ES	ME	U	L	GS	ES	ME	U	L	*MIN. COVER	FACILITY SPACE ALLOTMENT (MAX)
GS	GAS SERVICE (U)(V)(D)(G)(K)(N)(O)(P)	—	12"	12"	—	12"	—	12"	—	12"	12"	24" MIN 42" MAX	2–1/2" x 2–1/2"
ES	ELECTRIC SERVICE (W)(U)(V)(D)(G)(P)	12"	Ⓒ	Ⓒ	12"	12"	12"	Ⓒ	Ⓒ	12"	12"	24"	5–1/2" x 5–1/2"
ME	MULTIPLE ELECTRIC (W)(I)(P)	12"	Ⓒ	Ⓒ	12"	12"	—	Ⓒ	Ⓒ	—	—	24"	WILL VARY DUE TO BOARD AMPACITY
U	FOREIGN UTILITY TELCO, CATV (U)(V)(F)(H)(J)	—	12"	6"	—	12"	12"	12"	—	—	12"	18"	9" x 9"
L	FOREIGN UTILITY STREET LIGHT (U)(V)(F)(M)	12"	12"	12"	12"	—	12"	12"	—	12"	1" or less	18"	2–1/2" x 2–1/2"

INSTALLATION:

A. AN EFFORT SHOULD BE MADE TO KEEP THE TRENCH DEPTH LESS THAN 60 INCHES. IF A PERSON IS REQUIRED TO ENTER A TRENCH 60 INCHES OR DEEPER, IT SHALL BE SHORED, BENCHED, OR SLOPED TO PREVENT MOVEMENT OF EARTH THAT MAY ENDANGER LIFE OR PROPERTY. THE TRENCH CONFIGURATION, UTILITY POSITIONING AND ALL OTHER RELATED CONSTRUCTION MUST CONFORM TO THIS STANDARD AND THE STATE OF CALIFORNIA PUBLIC UTILITIES COMMISSION GENERAL ORDERS 128 AND 112D, AND ANY OTHER APPROPRIATE GOVERNMENTAL AGENCY HAVING JURISDICTION OVER CONSTRUCTION.

NOTE: BENCHING THE TRENCH IS FOR SAFETY REASONS ONLY AND NOT TO BE USED FOR INSTALLATION PURPOSES.

(B) THE TRENCH DEPTH IN THIS STANDARD SHALL BE FOLLOWED FOR ALL NORMAL INSTALLATIONS. IN INSTALLATIONS WHERE THE TRENCH DEPTH CANNOT BE MET, G.O. 128 REQUIRES ONE OF THE FOLLOWING: (1) STEEL, OR (2) SCHEDULE 40 PVC OR SCHEDULE 80 PVC CONDUIT WITH A MINIMUM WALL THICKNESS OF 0.15 INCHES, OR (3) A 3 INCH LAYER OF CONCRETE (2 SACK 3/8" ROCK) ABOVE AND 2 INCHES ON EACH SIDE OF THE CONDUIT. REDUCED DEPTHS MUST BE APPROVED BY BOTH THE CUSTOMER PROJECT PLANNER AND SDG&E INSPECTOR.

(C) ANY CONDUIT COMBINATION SMALLER THAN 5 INCH, (NOT MULTIPLE ELECTRIC–ME OR SERVICE CONDUITS) ARE PERMITTED WITHOUT SEPARATION WHEN INSTALLED IN A HORIZONTAL CONFIGURATION. SDG&E TELECOMMUNICATIONS SPACE ALLOTMENT IS PERMITTED NEXT TO THE ELECTRIC SPACE ALLOTMENTS WITHOUT SEPARATION. (6 INCH MINIMUM TRENCH WIDTH, 24 INCH MAXIMUM TRENCH WIDTH) (SEE STANDARD 3376 FOR CONDUIT/TRENCH CONFIGURATION).

(D) BASE AND SHADING MATERIAL FOR GAS TRENCH ONLY:
IMPORTED MATERIAL CONSISTING OF NATURAL SAND OR MANUFACTURED SAND, EXISTING NATIVE MATERIAL, OR COMBINATIONS MAY BE USED FOR BASE AND SHADING MATERIAL PROVIDED IT COMPLIES WITH GAS STANDARD G7405 AND IS OF A QUALITY THAT WILL COMPLY WITH COMPACTION REQUIREMENTS OF GOVERNMENTAL AGENCIES. STANDARD G7405 SPECIFIES THAT THE MATERIAL MUST HAVE A MIXTURE OF PARTICLE SIZES ALL SMALLER THAN 1/2 INCHES. EXISTING NATIVE MATERIAL AND IMPORTED MATERIAL PROVIDED BY A DEVELOPER DOES NOT HAVE TO BE TESTED BY AN INDEPENDENT PROFESSIONAL TESTING FIRM IF, IN THE OPINION OF THE INSPECTOR, IT MEETS THE G7405 SPECIFICATION.

SHADING MATERIAL FOR ELECTRIC TRENCH ONLY: ELECTRIC SHADING MATERIAL (ESM) SPECIFICATION.
ACCEPTABLE MATERIAL FOR (DB) DIRECT BURIED CONDUITS.
NATURAL SAND, MANUFACTURED SAND, DECOMPOSED GRANITE, ROCK FREE SANDY LOAM, EXISTING NATIVE MATERIAL OR COMBINATION THEREOF. AGGREGATE COMPOSITION SHALL BE CAPABLE OF PASSING THROUGH A 1/2 INCH SIEVE. GRAVELS SHALL NOT AMOUNT TO MORE THAN 50% OF THE MIXTURE. SCREENING OR OTHER SUITABLE MEANS MAY BE REQUIRED AT THE DISCRETION OF THE SDG&E INSPECTOR TO MEET THIS (ESM) SHADING MATERIAL SPECIFICATION. NOT ACCEPTABLE ARE SOILS OF HIGHLY ORGANIC CONTENT IDENTIFIED BY ODOR OR SPONGY FEEL AND HIGHLY PLASTIC (SOGGY) CLAYS, SILTS OR METALLIC SLAG.

BASE AND SHADING MATERIAL FOR JOINT GAS AND ELECTRIC TRENCH:
WHEN BOTH GAS AND ELECTRIC ARE INSTALLED IN THE SAME TRENCH, THE BASE AND SHADING MATERIAL WHICH COMPLIES WITH GAS STANDARD G7405 SHALL BE USED FOR THE GAS PIPE. ELECTRIC SHADING MATERIAL (ESM) MAY BE USED FOR SHADING MATERIAL ON ELECTRIC CONDUIT.

BACKFILL MATERIAL FOR GAS AND/OR ELECTRIC:
THE MATERIAL USED FOR BACKFILLING THE TRENCH ABOVE THE SHADING MATERIAL AND EXTENDING UPWARD TO THE SUBGRADE SHALL BE FREE OF ROCKS OR CLODS LARGER THAN 6 INCHES IN ANY DIMENSION. THE COARSE MATERIAL SHALL BE WELL DISTRIBUTED THROUGHOUT THE FINER MATERIAL. THE AMOUNT OF ROCKS OR CLODS SHALL BE LIMITED, IN THE OPINION OF THE INSPECTOR, TO ALLOW FOR BAR TESTING FOR GAS LEAKS. THE BACKFILL MATERIAL SHALL MEET THE REQUIREMENTS OF ALL APPLICABLE CODES, ORDINANCES AND SDG&E STANDARDS AND BE FREE OF DEBRIS AND ORGANIC MATTER. 1–SACK CONCRETE SLURRY MIX MAY BE USED FOR FOR BACKFILL MATERIAL IF THE PIPE GAS IS SHADED WITH A MINIMUM OF 4 INCHES OF COMPACTED SHADING MATERIAL. 1–SACK CONCRETE SLURRY MIX IS PREFERRED FOR BACKFILL. THE SLURRY INSTALLATION SHALL MEET MEET THE REQUIREMENTS OF GOVERNMENTAL AGENCIES AND SDG&E STANDARDS.

BASE INSTALLATION FOR GAS:
FOR GAS, 3 INCHES OF BASE MATERIAL IS REQUIRED ON THE BOTTOM OF THE TRENCH TO PREVENT DAMAGE FROM ROCKS, SAGS, OR POCKETS.

EARTH TRENCH BOTTOM INSTALLATION FOR ELECTRIC: (EB & DB CONDUIT)
THE 1 INCH EARTH TRENCH BOTTOM SHALL BE STABLE WITH A UNIFORM GRADE CONTAINING NO HARD CLODS, ROCKS, ETC. THAT MAY DAMAGE THE CONDUIT. IF, IN THE OPINION OF THE SDG&E INSPECTOR, THE CONDUIT MAY BE DAMAGED, TAMPING, WETTING OR A 3 INCH BASE ELECTRIC SHADING MATERIAL (ESM) MAY BE REQUIRED.

SHADING INSTALLATION:
A MINIMUM COVER OF 4 INCHES OF COMPACTED SHADING MATERIAL (4 INCHES AFTER COMPACTION) SHALL BE REQUIRED ABOVE THE GAS PIPE AND ELECTRIC CONDUIT. A MINIMUM COVER OF 12 INCHES OF COMPACTED SHADING MATERIAL WILL BE REQUIRED IF, IN THE OPINION OF THE INSPECTOR, THERE IS AN EXCESSIVE AMOUNT OF ROCK AND CLODS IN THE BACKFILL. THE SHADING MATERIAL MUST BE INSTALLED AND COMPACTED AT EACH LEVEL BEFORE INSTALLING THE NEXT UTILITY. THE SHADING MATERIAL MUST BE INSTALLED BEFORE THE TRENCH IS BACKFILLED TO PREVENT DAMAGE FROM ROCKS, CLODS, ETC. GAS PIPE SHALL NEVER BE CONCRETE OR SLURRY ENCASED, AND SHALL HAVE THE PROPER BASE, SHADING, BACKFILL, AND COMPACTION.

COMPACTION:

EXTREME CARE SHALL BE TAKEN TO ENSURE THAT SHADING MATERIAL IS ADEQUATELY COMPACTED BOTH UNDERNEATH AND AROUND GAS PIPE AND FITTINGS TO PREVENT EXCESSIVE STRESS AND SHEARING FORCES. HAND TEMP AROUND FITTINGS WHERE MECHANICAL COMPACTION CANNOT BE USED. COMPACTING WITH A HYDRAHAMMER OR SIMILAR EQUIPMENT SHALL NOT BE ALLOWED ON TRENCHES WHERE POLYETHYLENE PIPE HAS BEEN INSTALLED. WHEN THE SHEEP'S FOOT METHOD OF COMPACTION IS USED, A MINIMUM OF 18" OF COVER IS REQUIRED BEFORE COMPACTING. WHEEL ROLLING WITH A HEAVY VEHICLE, COMBINED WITH ADEQUATE MECHANICAL COMPACTION, IF NEEDED, IS ALLOWED FOR COMPACTING BACKFILL MATERIAL PROVIDED A MINIMUM OF 4 INCHES OF MECHANICALLY COMPACTED SHADE MATERIAL AND A MINIMUM OF 12" OF BACKFILL MATERIAL EXISTS OVER THE GAS PIPE OR ELECTRICAL CONDUIT. WHEN FLOODING OF THE TRENCH IS DONE TO CONSOLIDATE BACKFILL, CARE MUST BE TAKEN TO ENSURE THAT GAS PIPE OR ELECTRIC CONDUIT HAS NOT FLOATED FROM ITS POSITION IN THE TRENCH. COMPACTION BY THE WATER JETTING METHOD IS NOT ALLOWED. ALLOWED. SHADING AND BACKFILL SHALL BE COMPACTED IN ACCORDANCE WITH GOVERNMENTAL AGENCIES AND SHALL HAVE A MINIMUM OF 90 PERCENT RELATIVE COMPACTION.

ALL BASE, SHADING, AND BACKFILL MATERIAL MUST BE APPROVED BY AN SDG&E INSPECTOR.

(E) ONE OR MORE 5 INCH PRIMARY CONDUITS SHALL BE SLURRY ENCASED.

(F) FOREIGN UTILITIES MUST NOT BE LOCATED UNDER ANY SDG&E FACILITIES, SUCH AS HANDHOLES, TRANSFORMER PADS, ETC.

(G) MINIMUM TRENCH WIDTH

UTILITY		PIPE/CONDUIT SIZE	MINIMUM WIDTH
GAS	SINGLE GAS – SERVICE	1 INCH AND LESS	6 INCHES
	SINGLE GAS	2 INCH	9 INCHES
	SINGLE GAS	3 AND 4 INCHES	12 INCHES
	SINGLE GAS	6 AND 8 INCHES	18 INCHES
ELECT. MAIN TRENCH	ALL CONDUIT SIZES INCLUDING 2 – 5 INCHES		
	ELECTRIC	ALL SIZES	6 INCHES
	JOINT UTILITIES	ALL PERMITTED SIZES (6 AND 8 INCH GAS)	12 INCHES 18 INCHES
	MULTIPLE ELECTRIC	SPACERS AND 1–SACK CONCRETE SLURRY	9 INCHES
ELECT. SERVICE TRENCH	SINGLE ELECT.	2 INCH CONDUIT	6 INCHES
	SINGLE ELECTRIC & FOREIGN UTILITIES (EXCLUDING GAS)	2 INCH CONDUIT	6 INCHES
	ELECTRIC	ALL SIZES	9 INCHES
	SINGLE ELECTRIC & FOREIGN UTILITIES (EXCLUDING GAS)	LARGER THAN 2 INCH	12 INCHES
	JOINT UTILITIES	ALL PERMITTED SIZES	12 INCHES
	MULTIPLE ELECTRIC	SPACERS AND 1–SACK CONCRETE SLURRY	9 INCHES

FOR A GAS OR ELECTRIC SERVICE, IF ANY OBSTRUCTION IS ENCOUNTERED (WATER PIPES, ETC.), A 2 FOOT WIDE X 3 FOOT LONG HOLE MAY BE REQUIRED FOR WORKING ROOM IN THE AREA OF THE OBSTRUCTION. THIS IS TO BE DETERMINED BY AN SDG&E INSPECTOR.

(H) THE FOREIGN UTILITY (U) SPACE ALLOTMENT MUST BE A MINIMUM OF 6 INCHES BELOW THE GAS MAIN AND 12 INCH RADIAL SEPARATION FROM ALL OTHER UTILITIES MUST BE MAINTAINED (SEE FIGURES 1 AND 5). IF (U) SPACE ALLOTMENT EXCEEDS A 9 INCH HORIZONTAL MEASUREMENT, IT MUST BE PLACED DIRECTLY ABOVE THE ELECTRIC SPACE ALLOTMENTS AND SHALL NOT EXTEND PAST THE OUTER SIDES OF ELECTRIC SPACE ALLOTMENTS. (FOR INSTALLATION PURPOSES, BENCHING THE TRENCH IS NOT ALLOWED), SEE FIGURES 2, 3, & 4. IF (U) SPACE ALLOTMENT IS 9" X 9" OR SMALLER, IT IS ALLOWED AT THE SAME LEVEL AS THE ELECTRIC (SEE FIGURE 6).

(I) ALL EB CONDUIT, REGARDLESS OF THE SIZE, SHALL BE CONCRETE ENCASED WITH 1–SACK CEMENT SLURRY. DB CONDUIT MAY ALSO BE SLURRY ENCASED IF INCLUDED IN THE MULTIPLE ELECTRIC PACKAGE. IN A SERVICE TRENCH, ALL EB CONDUIT SHALL BE ENCASED WITH CEMENT SLURRY (1 SACK). DB CONDUIT MAY ALSO BE CONCRETE OR SLURRY ENCASED IF INCLUDED IN THE MULTIPLE ELECTRIC PACKAGE.

(J) MINIMUM SEPARATION MAIN TRENCH

UTILITY	HORIZONTAL SEPARATION
TELCO MULTIPLE CONCRETE DUCT (CONDEX), TRANSITE, WATER, SEWER, FUEL, OIL, DIESEL, PROPANE GAS, SPRINKLER, DRAIN, LEACH LINES, STEEL GAS MAIN LARGER THAN 2", PRIVATELY OWNED UTILITIES i.e. PRIVATE TELCO, VIDEO, AUDIO, SECURITY WIRES, FIRE ALARM, STREET LIGHTING, ETC..	NOT PERMITTED IN JOINT TRENCH WITH GAS AND/OR ELECTRIC
WATER, SEWER, EXISTING GAS OR ELECTRIC, STORM DRAINS, STEAM, IRRIGATION PIPE, SPRINKLER PIPE LARGER THAN 4", PRIVATE TELCO TRANSITE, PROPANE GAS	* 5 FEET WITH 3 FEET OF UNDISTURBED SOIL
SEWAGE LEACH LINES OR SEEPAGE PITS	5 FEET FROM MAIN TRENCH FOR EACH 1' DEPTH OF MAIN TRENCH
IRRIGATION, SPRINKLER PIPE 4" AND LESS	* 3 FEET PROVIDED DEPTH OF PIPE DOES NOT EXCEED DEPTH OF GAS OR ELECTRIC
FUEL OIL, GASOLINE, DIESEL	FROM GAS—15 FEET, FROM ELECT.—5 FEET WITH 3 FEET OF UNDISTURBED SOIL

IN CONSIDERATION FOR THE SAFETY OF THE GENERAL PUBLIC, PERSONS ENGAGED IN CONSTRUCTION, PROPERTY, AND FOR THE OPERATION AND MAINTENANCE OF SDG&E SYSTEM, PROPANE GAS LINES ARE NOT PERMITTED IN A JOINT TRENCH WITH SDG&E FACILITIES.

* IF FIELD CONDITIONS WILL NOT PERMIT ANY OF THESE SEPARATIONS, THEN APPROVAL OF REDUCED SEPARATIONS MUST COME FROM BOTH THE CUSTOMER PROJECT PLANNER AND SDG&E INSPECTOR. ON FIELD CONDITIONS THAT WILL NOT PERMIT STANDARD PARALLEL SEPARATIONS, A 12 INCH MINIMUM SEPARATION IS REQUIRED. PROPANE GAS SHALL ALWAYS HAVE A 5 FOOT SEPARATION.

UTILITY	VERTICAL (CROSSING) SEPARATION MIN.
ALL WET UTILITIES, TELCO, TV, GAS, ELECT.	6 INCHES
FUEL OIL, GASOLINE, DIESEL	FROM GAS, 12 INCHES FROM ELECT. 6 INCHES
ARC—WELDABLE PIPELINES 3" AND LARGER	18 INCHES
STEAM (SEE NOTE)	FROM GAS, POLY PIPE 5 FEET FROM ELECT., 5 FEET

NOTE: PLACE INSULATING BARRIER BETWEEN STEAM MAIN AND POLYETHYLENE PIPE AND/OR ELECTRIC.

MINIMUM SEPARATION SERVICE TRENCH

IN A SERVICE TRENCH, WATER, SEWER, PROPANE GAS, SPRINKLER, DRAIN, LEACH LINES, PRIVATELY OWNED UTILITIES i.e., PRIVATE TELCO, VIDEO, AUDIO, SECURITY WIRES, FIRE ALARM, STREET LIGHTING, ETC., ARE NOT PERMITTED IN THE SAME TRENCH WITH GAS OR ELECTRIC. WHEN THESE FACILITIES PARALLEL GAS OR ELECTRIC, 12 INCHES SEPARATION BETWEEN SEPARATE TRENCHES SHALL BE MAINTAINED BETWEEN THE UTILITIES WITH AT LEAST 12 INCHES OF UNDISTURBED NATIVE SOIL BETWEEN TRENCHES. PROPANE GAS SHALL ALWAYS HAVE A 5 FOOT SEPARATION. WHEN CROSSING, A 6 INCH VERTICAL SEPARATION IS REQUIRED.

(EXCEPTION) WHEN THERE IS NO SDG&E GAS IN THE SERVICE TRENCH, A SINGLE NATURAL GAS LINE MAY BE INSTALLED IN THE TRENCH, PROVIDED A 12 INCH RADIAL SEPARATION IS MAINTAINED. (THIS IS FOR AN INDIVIDUAL HOUSE ON A CASE BY CASE BASIS, NOT A GROUP OF HOUSES/BUILDINGS).

FUEL OIL, GASOLINE, AND DIESEL LINES MUST MAINTAIN A 15 FOOT SEPARATION FROM GAS PIPELINES AND A FIVE FOOT SEPARATION WITH THREE FEET OF UNDISTURBED SOIL SEPARATION FROM ELECTRIC CONDUITS.

IF FIELD CONDITIONS WILL NOT PERMIT THESE SEPARATIONS, THEN APPROVAL OF REDUCED SEPARATIONS MUST COME FROM BOTH THE CUSTOMER PROJECT PLANNER AND SDG&E INSPECTOR.

WHEN FIELD CONDITIONS WILL NOT PERMIT STANDARD PARALLEL SEPARATIONS, A 12 INCH MINIMUM SEPARATION IS REQUIRED. PROPANE GAS SHALL ALWAYS HAVE A 5 FOOT SEPARATION.

(K) THE GAS MAIN SHALL BE THE LAST INSTALLED, SHALL BE ON THE PROPERTY SIDE OF THE TRENCH, AND SHALL HAVE A MINIMUM OF INCH PAD (AFTER COMPACTION) OF SHADING MATERIAL THE WIDTH OF THE TRENCH ABOVE ANY FOREIGN UTILITY. ANY CROSSING INVOLVING GAS SHALL MAINTAIN A MINIMUM VERTICAL SEPARATION OF 6 INCHES. A GAS SERVICE INSTALLED IN A MAIN TRENCH OR A SERVICE TRENCH ON PUBLIC PROPERTY SHALL REQUIRE THE SAME COVER AND CLEARANCES AS A GAS MAIN. A GAS SERVICE IN A TRENCH ON PRIVATE PROPERTY MAY BE INSTALLED ON THE SAME LEVEL AS FOREIGN UTILITY OR ELECTRIC, BUT SHALL NOT BE DEEPER THAN THE ELECTRIC SERVICE. SDG&E INSPECTOR IS TO DETERMINE AT WHICH LEVEL THE GAS SERVICE IS INSTALLED ON PRIVATE PROPERTY.

(L) SDG&E INSTALLED STREET LIGHT CIRCUITS, WHEN INSTALLED ALONE IN A TRENCH, SHALL BE AT A MINIMUM DEPTH OF 24 INCHES EVERYWHERE EXCEPT ON PRIVATE PROPERTY, WHERE THE MINIMUM MAY BE 18 INCHES BELOW FINAL GRADE.

(M) THE ELECTRIC PRIMARY WILL BE ON THE STREET SIDE OF THE TRENCH. THE SDG&E STREET LIGHT CIRCUITS WILL BE ON THE PROPERTY SIDE OF THE TRENCH WHENEVER POSSIBLE. FOREIGN UTILITY STREET LIGHTS (NOT SERIES) SHALL BE ON THE PROPERTY SIDE OF THE TRENCH AT THE SAME LEVEL AS SDG&E CONDUITS AND SHALL MAINTAIN A 12 INCH RADIAL SEPARATION. ALL UTILITIES SHALL MAINTAIN A 6 INCH SEPARATION WHEN CROSSING ALL SDG&E ELECTRIC. FOR SEPARATION ON THE SERVICE TRENCH, SEE CHART ON PAGE 7403.2 (3370.2).

(N) MINIMUM HORIZONTAL SEPARATION FROM GAS PIPE TO ANY FOREIGN SUBSTRUCTURE (VAULTS, HANDHOLES, ETC.) SHALL BE 12 INCHES.

(O) GAS LINES MUST NOT BE LOCATED UNDER ANY STRUCTURE, SUCH AS BUILDINGS, CARPORTS, PATIOS, BREEZEWAYS, EQUIPMENT PADS, AND FACILITIES, SUCH AS SPLICE BOXES FOR ELECTRIC, CATV, TELCO, ETC. TREES OR SHRUBBERY MUST NOT BE PLANTED OVER ANY GAS PIPELINE. A THREE FOOT SEPARATION MUST BE MAINTAINED BETWEEN THE TREE ROOT BALL AND THE GAS PIPELINE.

(P) IF AN AGENCY OR UTILITY SUCH AS THE U.S. GOVERNMENT, SAN DIEGO UNIFIED PORT DISTRICT, TELCO, CATV, ETC. REQUIRES CONCRETE ENCASEMENT, CONCRETE MAY BE SUBSTITUTED FOR THE BACKFILL. BASE & SHADING SHALL BE PER SDG&E STANDARDS. ON SDG&E CONDUITS, EITHER DIRECT BURIED OR CONCRETE ENCASED, A MINIMUM INCH COMPACTED SHADING MATERIAL SHALL BE INSTALLED OVER THE UPPERMOST DB CONDUITS BEFORE THE CONCRETE BACKFILL IS INSTALLED. ALL OTHER INSTALLATIONS SHALL PROVIDE THE REQUIRED MATERIALS AS SPECIFIED IN THIS STANDARD AND STANDARDS 3365 & 3376. NOTE: THE GAS MAIN, GAS SERVICE SHALL NEVER BE CONCRETE OR SLURRY ENCASED AND SHALL HAVE THE PROPER BASE, SHADING, BACKFILL, AND COMPACTION.

Q. MINIMUM SEPARATION OF ANY FOREIGN UTILITY INCLUDING WATER PIPES, SEWER, ETC., FROM SDG&E SUBSTRUCTURES SHALL BE 12 INCHES. PROPANE GAS SHALL BE 5 FEET.

REFERENCE:

(R) SEE STANDARD PAGE 3364.1 FOR UTILITY LOCATIONS IN LOCAL AND COLLECTOR STREETS.

S. SEE STANDARD PAGE 3364.2 FOR UTILITY LOCATIONS IN MAJOR STREETS, PRIME ARTERIALS AND EXPRESSWAYS.

T. SEE STANDARD PAGE 3364.3 FOR JOINT TRENCH TYPICAL LOCATION FOR UNDERGROUND CONVERSIONS.

(U) SEE STANDARD PAGE 3365 FOR IMPORTED OR NATIVE BACKFILL MATERIAL.

(V) SEE STANDARD PAGE 3365 FOR SLURRY BACKFILL MATERIAL.

(W) CONCRETE OR CONCRETE SLURRY ENCASEMENT OF ELECTRIC CONDUITS SHALL BE IN ACCORDANCE WITH STANDARD 3376.

X. SEE STANDARD PAGE 3376, 3421, 3425, 3426, AND 3427 FOR CONDUIT CONFIGURATIONS ALLOWED IN THE SERVICE TRENCH.

(Y) SEE STANDARD 4620 TELECOMMUNICATIONS INSTALLATION.

Z. FOR TRENCHING AND SHORING QUESTIONS, SEE SDG&E TRENCHING AND SHORING MANUAL.

SCOPE: THIS STANDARD SHOWS CEMENT AND SLURRY MIXTURE. ALSO SHOWN ARE CONCRETE SLURRY ENCASED CONDUIT INSTALLATIONS.

DATA FOR CONDUITS WHICH ARE NORMALLY INSTALLED 2 CONDUITS WIDE AND 1 THRU 4 ROWS HIGH		
NUMBER OF CONDUITS IN TRENCH	CONCRETE PER 100 FT OF TRENCH, CUBIC YARDS	
	4" CONDUITS	5" CONDUITS
2	5.5	5.2
4	8.7	8.5
6	12.4	11.8
8	16.1	15.1

INGREDIENTS FOR 1–SACK CONCRETE SLURRY MIX (PER YARD)									
CEMENT FOR	AIR ENTRAINMENT %	SAND (LBS)	GRAVEL		CEMENT		MAX., TOTAL WATER	SLUMP	
			SIZE	LBS	SACKS	LBS		MIN. (IN)	MAX. (IN)
ENCASEMENT	0–2	3000 ± 50	–	–	1	94	60 GALS PER YARD	6	8

INGREDIENTS FOR 2–SACK CONCRETE MIX (PER YARD)									
CEMENT FOR	AIR ENTRAINMENT %	SAND (LBS)	GRAVEL		CEMENT		MAX., TOTAL WATER PER SACK OF CEMENT (GALS.)	SLUMP	
			SIZE	LBS	SACKS	LBS		MIN. (IN)	MAX. (IN)
ENCASEMENT	0–2	1600 ± 20	3/8	1600 ± 20	2	188	50 GALS PER YARD	6	8

NOTES:

SECONDARY SERVICE TRENCH

(SEE PAGES 3421.2, 3425.2, 3426.3 AND 3427.3 FOR CONDUIT PLACEMENT AND TRENCH CONFIGURATION. SEE PAGES 3370.3 OR 3371.3 FOR SHADING/BACKFILL REQUIREMENTS, AND TRENCH DEPTH).

INSTALLATION WHERE CONCRETE SLURRY ENCASEMENT (1–SACK MIX) AND SPACERS ARE REQUIRTED:

1. WHEN CONDUITS ARE IN A STACKED CONFIGURATION WITH SPACERS, ENCASED BURIED (EB) CONDUITS MUST BE ENCASED WITH 1–SACK SLURRY. DIRECT BURIED (DB) CONDUITS ARE ALSO ACCEPTABLE WHEN EXTENDED FROM A DIRECT BURIED TRENCH INTO THE STACKED CONFIGURATION.

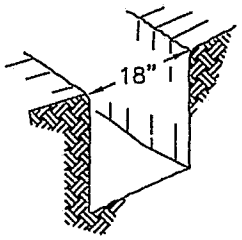
INSTALLATION FOR CONCRETE SLURRY ENCASEMENT (1–SACK MIX) OR IMPORTED/NATIVE MATERIAL WITHOUT SPACERS:

1. WHEN CONDUITS ARE SIDE BY SIDE ON THE BOTTOM OF THE TRENCH (4 CONDUITS MAX.). IN THE TRANSITION AREA WHERE THE CONDUITS FROM THE BOTTOM OF THE TRENCH START TOWARD THE SURFACE (THE STRAIGHT PORTION BY THE 90 BEND), SPACERS MAY BE REQUIRED TO ALLOW THE 90 BENDS TO ENTER STRAIGHT INTO THE PAD OPENING. USE DIRECT BURIED (DB) CONDUIT WITH IMPORTED NATIVE MATERIAL. USE ENCASED BURIED (EB) CONDUITS WITH CONCRETE SLURRY ENCASEMENT (1–SACK MIX). DIRECT BURIED (DB) CONDUITS ARE ALSO ACCEPTABLE.
2. IF THE SERVICE CONDUIT EXTENDS INTO THE MAIN TRENCH WHERE STACKING IS REQUIRED, ALL CONDUITS SHALL BE INSTALLED IN ONE PACKAGE WITH SPACERS AND 1–SACK SLURRY.

MAIN TRENCH OR PRIMARY SERVICE TRENCH
INSTALLATION WHERE CONCRETE SLURRY ENCASEMENT (1-SACK MIX) AND SPACERS ARE REQUIRED:

NOTES:

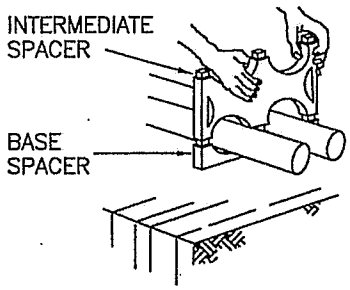
- SEE PAGES 3370.3 OR 3371.3 FOR SHADING AND BACKFILL REQUIREMENTS AND TRENCH DEPTH.
- SEE DESIGN MANUAL 5722 FOR FEEDER CONDUIT APPLICATIONS.
- ALL 5 INCH CONDUITS MUST BE ENCASED WITH CONCRETE SLURRY (1–SACK MIX).



MAIN TRENCH OR PRIMARY SERVICE TRENCH

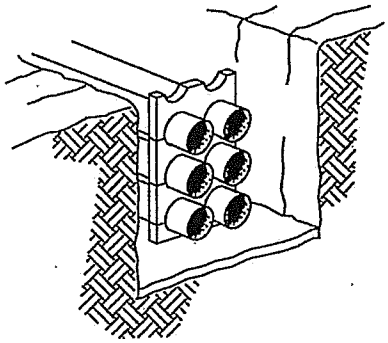
(STACKED CONDUIT CONFIGURATION USING EB CONDUIT, CONDUIT SPACERS AND 1–SACK CONCRETE SLURRY)

1. EXCAVATE TRENCH TO REQUIRED DEPTH AND WIDTH. SEE STANDARDS 3376, 3370 OR 3371 FOR TRENCHING REQUIREMENTS.



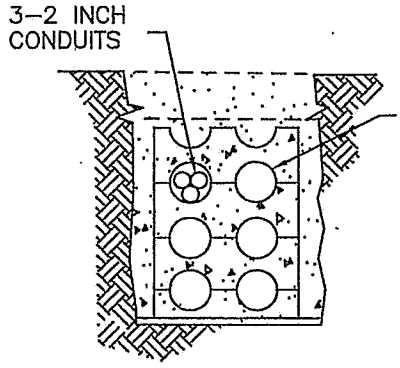
2. MULTI–SIZED CONDUIT SYSTEMS TO BE A MAXIMUM OF TWO CONDUITS WIDE AND FIVE CONDUITS HIGH (UP TO TEN * SPACER POSITIONS IN ONE TRENCH). IF MORE THAN TEN POSITIONS ARE REQUIRED, A SEPARATE CONDUIT BANK SHALL BE INSTALLED IN A SEPARATE TRENCH. MAINTAIN 5 FEET SEPARATION WITH 3 FEET OF UNDISTURBED NATIVE SOIL BETWEEN TRENCHES.

3. ASSEMBLE CONDUITS IN SPACERS ON TOP OF THE GROUND OR IN THE TRENCH. PLACE SPACERS 8 TO 10 FEET APART.



4. SPOT POUR 1–SACK OVER CONDUITS APPROXIMATELY AT 25 FOOT INTERVALS TO PREVENT CONDUITS FROM FLOATING.

5. A CONCRETE ENVELOPE USING 1–SACK CONCRETE MIX (PER TABLE ON PAGE 3376.1) IS TO BE POURED AROUND AND OVER THE CONDUITS. TRENCH BACKFILL MATERIAL SHALL MEET THE GOVERNING AUTHORITY'S REQUIREMENTS AND COMPANY STANDARDS.

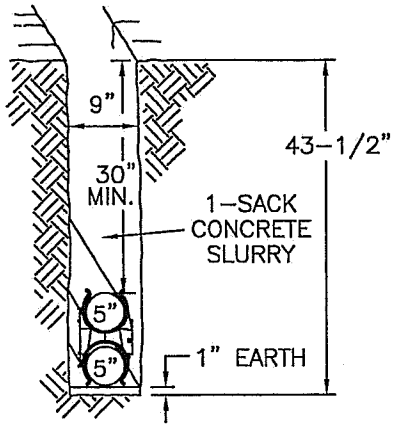


6. TWO OR THREE 2 INCH CONDUITS MAY BE INSTALLED IN ONE SPACER POSITION.

(MAXIMUM TWO 5 INCH CONDUITS USING CONDUIT SPACERS - ELECTRIC TRENCH ONLY).

NOTES:

- ALL 5 INCH PRIMARY CONDUITS MUST BE ENCASED WITH CONCRETE SLURRY (1–SACK MIX).
- USE DIRECT BURIED (DB) CONDUIT EVEN THOUGH THEY ARE ENCASED IN 1–SACK CONCRETE SLURRY.

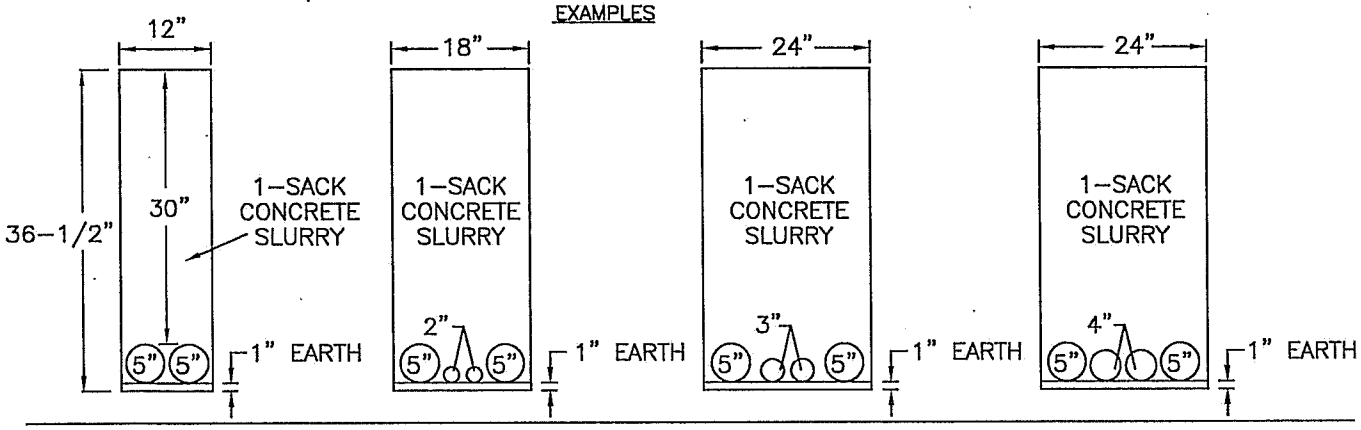


(5 INCH CONDUIT INSTALLATIONS WITHOUT SPACERS USING 1-SACK CONCRETE SLURRY - ELECTRIC TRENCH ONLY) MAXIMUM OF 2-5" CONDUITS.)

NOTES:

- ALL 5 INCH PRIMARY CONDUIT MUST BE ENCASED WITH CONCRETE SLURRY. (1–SACK MIX)
- USE DIRECT BURIED (DB) 5" CONDUIT EVEN THOUGH THEY ARE ENCASED IN 1–SACK CONCRETE SLURRY.
- THE EXAMPLES SHOWN ARE TYPICAL. OTHER CONDUIT COMBINATIONS MAY BE USED PROVIDED THE TOTAL NUMBER DOES NOT EXCEED FOUR. 1–INCH CONDUITS MAY BE ADDED AS NEEDED.
- ALWAYS INSTALL 5 INCH CONDUITS ON THE OUTER SIDE OF THE TRENCH.
- THE EXAMPLES SHOWN MAY BE USED IN A JOINT TRENCH CONFIGURATION.

EXAMPLES



(CONDUIT SMALLER THAN 5 INCH, CONCRETE SLURRY ENCASEMENT 1-SACK MIX OR IMPORTED/NATIVE MATERIAL)

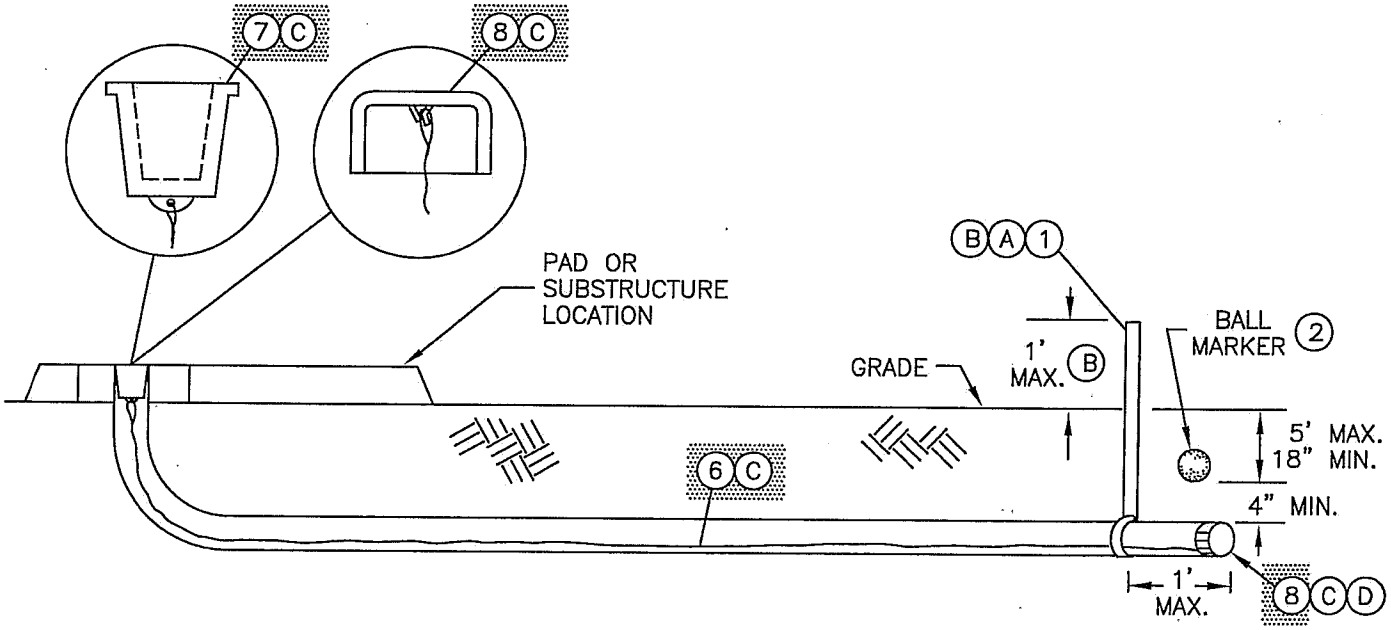
NOTES:

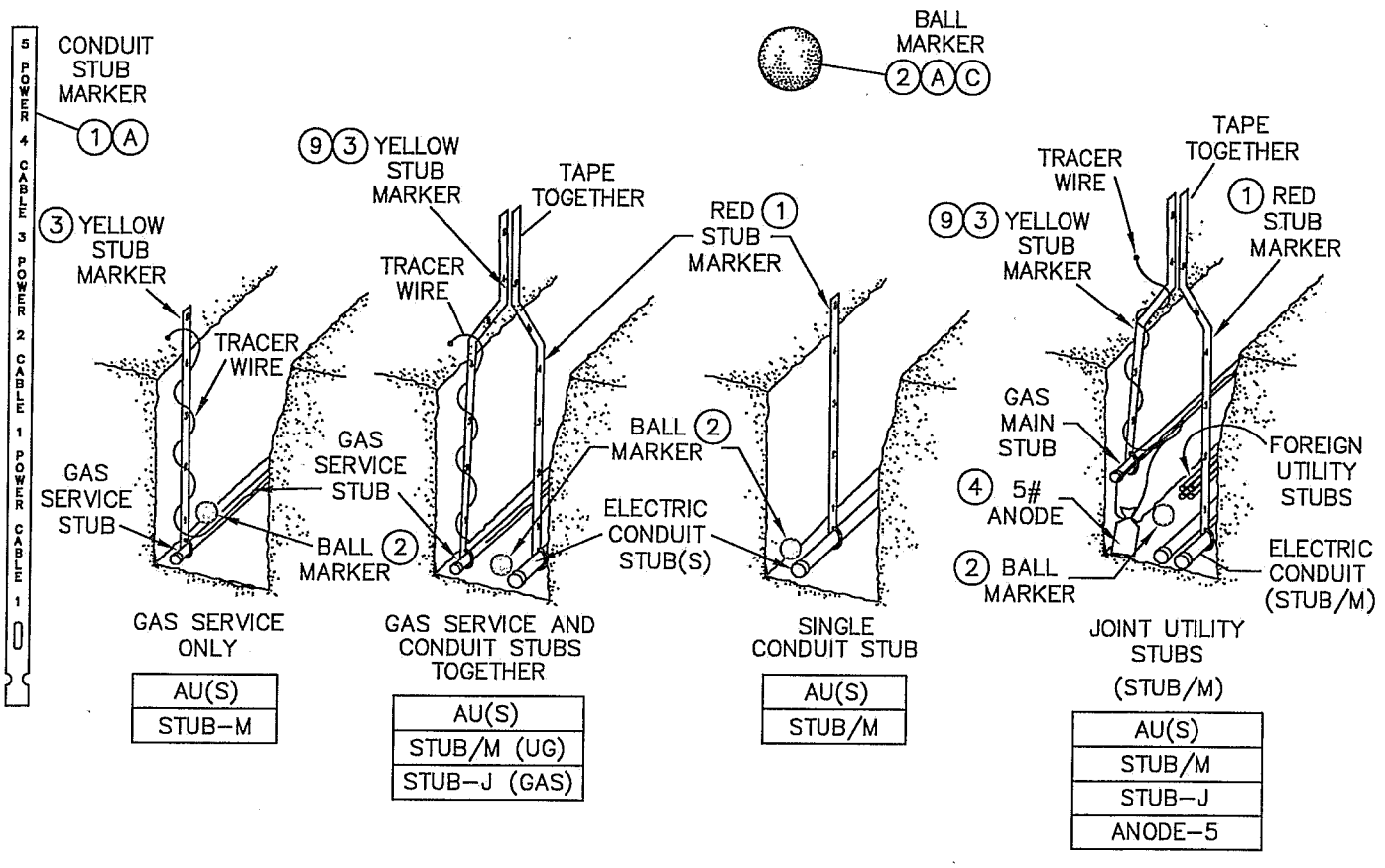
- ANY CONDUIT COMBINATION SMALLER THAN 5 INCHES MAY BE INSTALLED SIDE BY SIDE ON THE BOTTOM OF THE TRENCH. (6 INCH MINIMUM TRENCH WIDTH, 24 INCH MAXIMUM TRENCH WIDTH).
- THE CONDUIT COMBINATIONS DESCRIBED MAY BE USED IN A JOINT TRENCH CONFIGURATION.
- USE DIRECT BURIED (DB) CONDUIT WHEN THEY ARE TO BE ENCASED OR IMPORTED/NATIVE BACKFILL IS USED
- NARROW TRENCHES, 6 INCHES THROUGH 12 INCHES REQUIRE 1–SACK CONCRETE SLURRY OR MINIMUM 90% COMPACTION FOR IMPORTED OR NATIVE MATERIAL.
- SEE STANDARD 3365 FOR TYPICAL PLACEMENT AND PREFERRED TRENCH MATERIAL.

SERVICE GUIDE	Indicates Latest Revision	Completely Revised	New Page	Information Removed

	SDG&E ELECTRIC STANDARDS	REVISION
3376.3	CONDUIT ENCASED MULTI–CONDUIT INSTALLATION	DATE 7–23–02 APPD

SCOPE: THIS STANDARD SHOWS THE INSTALLATION AND MATERIAL REQUIRED FOR INSTALLING THE CONDUIT STUB MARKER AND BALL MARKER LOCATING SYSTEM USED TO LOCATE AND SHOW THE DEPTH OF PRIMARY, SECONDARY AND SERVICE CONDUIT STUBS.





GAS STD. D 7244	☒ Indicates Latest Revision	Completely Revised	New Page	Information Removed	SERVICE GUIDE

REVISION DATE 10–7–08 APPD TR / MC	SDG&E ELECTRIC STANDARDS	3377.1
	CONDUIT STUB MARKER AND BALL MARKER LOCATING SYSTEM	

BILL OF MATERIAL:

ITEM	DESCRIPTION	QUANTITY	CONSTR. STD OR PAGE NO.	STOCK NUMBER	ASSEMBLY UNITS
1	MARKER, CONDUIT STUB (COLOR–RED)	1	3377.1	476302	STUB/M
2	BALL MARKER	1		476492	
3	MARKER, GAS STUB (COLOR YELLOW)	1	3377.1 & .3	476304	STUB–M
4	ANODE, 5 LB	1	–	109360	ANODE–5
5	TAPE, GRAY	AS REQ'D	–	721120	–
6	PULLING AND MEASURING TAPE	AS REQ'D	–	721700	–
7	PLUG, CONDUIT	AS REQ'D	3373.2	–	–
8	CAP, CONDUIT END	AS REQ'D	3373.2	–	–
9	MARKER, GAS STUB ONLY (COLOR YELLOW)	AS REQ'D	3377.1 & .3	476304	STUB–J

INSTALLATION:

(A) INSTALL CONDUIT STUB MARKERS AND BALL MARKERS ON ALL STUBS (REGARDLESS OF LENGTH), 1' MAXIMUM INWARD FROM THE END. IF MORE THAN ONE CONDUIT IS STUBBED OUT AT THE SAME LOCATION, INSTALL ONE BALL MARKER ABOVE THE CONDUIT(S) ONLY.

(B) LOOP THE STUB MARKER AROUND THE CONDUIT. IF THE MARKER IS NOT LONG ENOUGH TO SHOW ABOVE GRADE LEVEL, TAPE A SECOND MARKER TO THE FIRST MARKER.

(C) INSTALL THE PULLING TAPE INSIDE THE CONDUIT LEAVING SLACK AT THE PAD OR SUBSTRUCTURE END. AT THE SAME END, THE PULL ROPE MUST BE SECURELY ATTACHED TO THE CONDUIT CAP.

(D) AT THE CONDUIT STUB END, TIE THE PULLING TAPE TO THE END OF THE CONDUIT AND TAPE THE END OF THE STUB OVER THE PULLING TAPE WITH GRAY TAPE.

REFERENCE:

G. SEE STANDARD PAGE 3370 FOR MINIMUM CONDUIT COVER AND CONDUIT PLACEMENT.

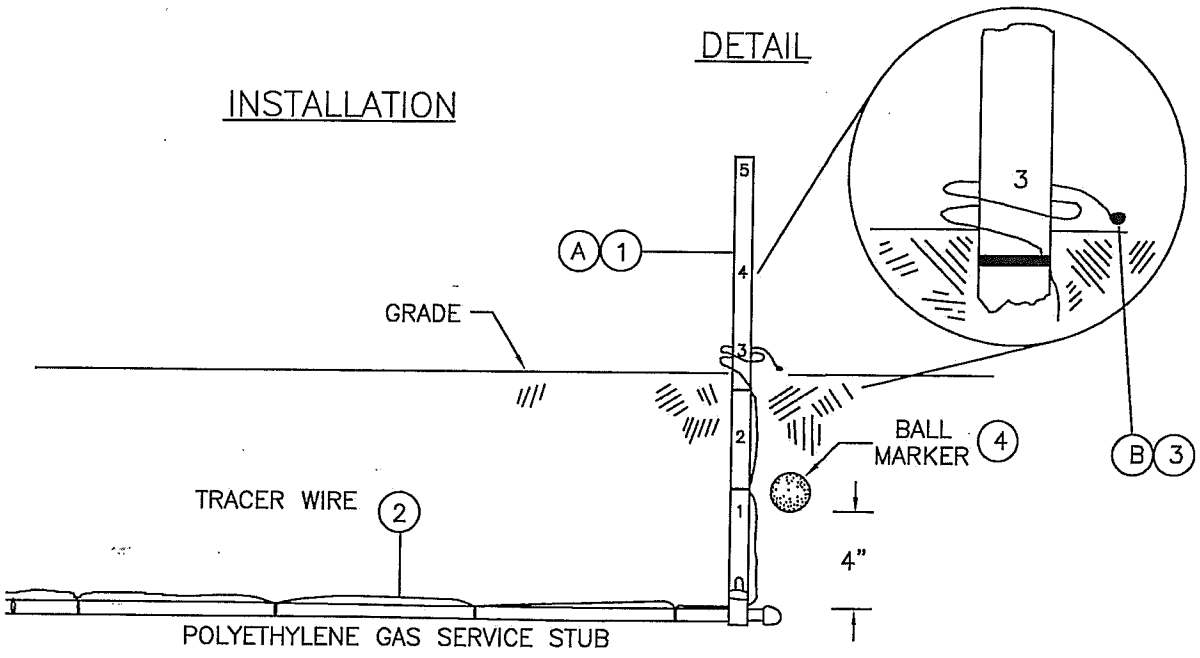
H. SEE STANDARD PAGE 3373.2 FOR CONDUIT PLUG OR CONDUIT CAP STOCK NUMBERS.

(I) SEE STANDARD PAGE 3377.1 & .3 FOR GAS STUB MARKER AND BALL MARKER LOCATING SYSTEM.

J. SEE "ELECTRIC STANDARD PRACTICE" NO. 226 FOR THE MARKER LOCATING UNIT.

K. SEE GAS STANDARDS D 7243, AND D 7244 FOR POLICY ON MARKING GAS STUBS.

SCOPE: THIS STANDARD SETS FORTH THE PROCEDURE FOR INSTALLING A GAS SERVICE STUB LOCATING MARKER.



NOTES:

- THE INSTALLER SHALL FURNISH AND INSTALL ALL THE MATERIAL SHOWN IN THIS STANDARD.

BILL OF MATERIAL:

ITEM	DESCRIPTION	QUANTITY	STOCK NUMBER
1	MARKER, GAS STUB (COLOR YELLOW)	1	476304
2	WIRE, TRACER (#14 AWG 600V COLOR YELLOW)	AS REQ'D	809200
3	SEALING COMPOUND	AS REQ'D	442976
4	BALL MARKER	1	476492

INSTALLATION:

A. ATTACH A YELLOW PLASTIC GAS MARKER TO THE END OF THE GAS SERVICE AND EXTEND ABOVE GRADE.

B. BRING THE YELLOW TRACER WIRE UP FROM THE POLY GAS SERVICE STUB AND TAPE IT TO THE YELLOW MARKER AT GRADE LEVEL. CUT THE TRACER WIRE 2' ABOVE GRADE AND COIL AROUND THE MARKER AT GRADE LEVEL. SEAL TIP OF THE TRACER WIRE WITH AQUA–SEAL AND ELECTRICAL TAPE TO PREVENT GROUNDING.

C. AN APPPROVED BALL MARKER WILL BE INSTALLED AT EACH STUB IN ACCORDANCE WITH REFERENCE D.

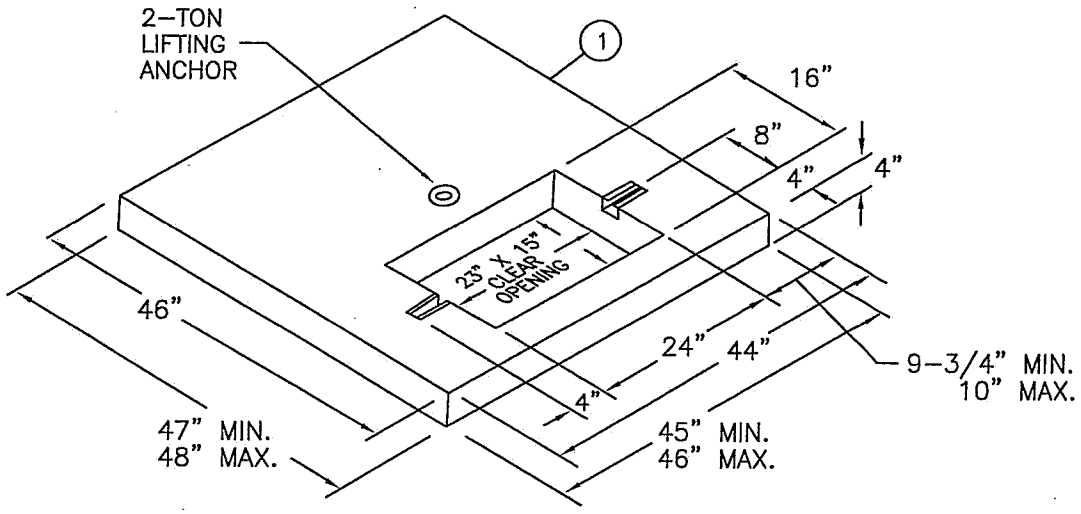
REFERENCE:

D. GAS STANDARDS:

- D 7241 "DIRECT BURIAL OF POLYETHYLENE"
- D 7244 "CONDUIT STUB MARKER AND TRACER WIRE LOCATING SYSTEM"

SCOPE: THIS STANDARD SHOWS THE PAD AND INSTALLATION REQUIREMENTS FOR THE ALLOWABLE CONDUIT COMBINATIONS AND CONFIGURATIONS FOR A SINGLE–PHASE TRANSFORMER, THREE–PHASE FUSE CABINET, SINGLE–PHASE FUSE CABINET AND SINGLE–PHASE CABLE TERMINATOR.

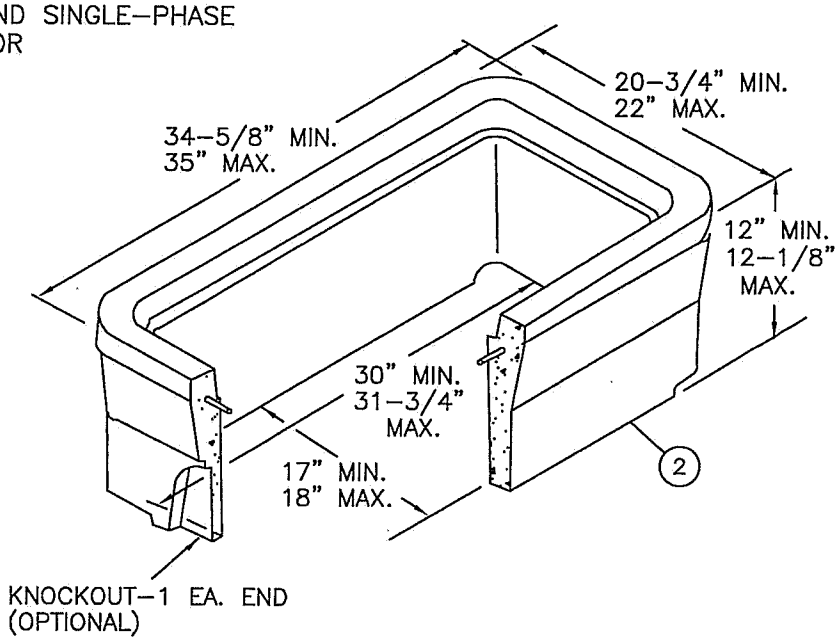
PAD
WEIGHT: 619# MAX.



3312 HANDHOLE

WEIGHT: 185" MAX.

(REQUIRED FOR THREE–PHASE FUSE CABINET, SINGLE–PHASE FUSE CABINET AND SINGLE–PHASE CABLE TERMINATOR

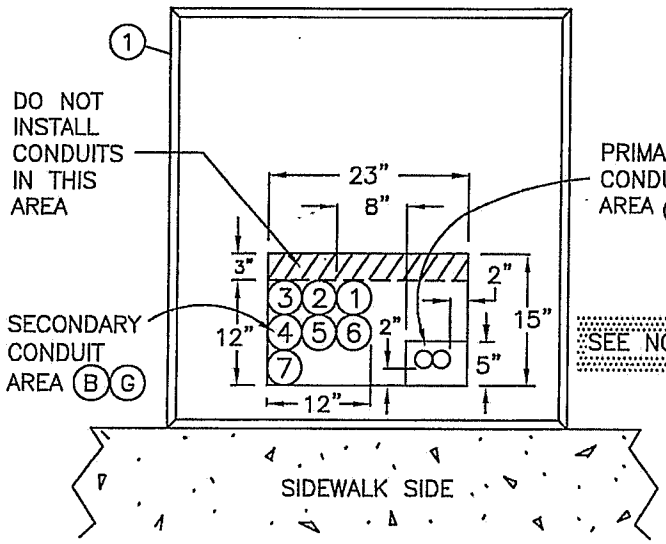


SERVICE GUIDE	Indicates Latest Revision	Completely Revised	New Page	Information Removed

REVISION DATE 1–1–2000 APPD	SDG&E ELECTRIC STANDARDS SINGLE–PHASE TRANSFORMER/UTILITY EQUIPMENT PAD	3421.1

VIEW A

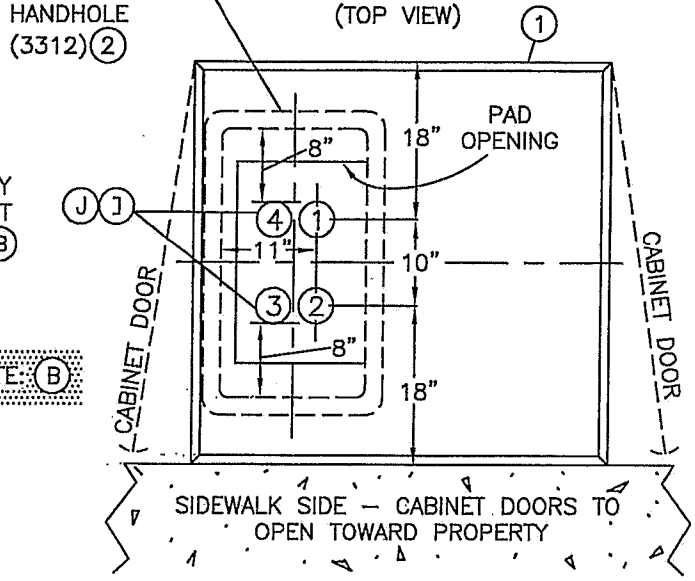
3711, 3712 SINGLE–PHASE TRANSFORMER



VIEW B

3514 THREE–PHASE FUSE CABINET INSTALLATION

(TOP VIEW)

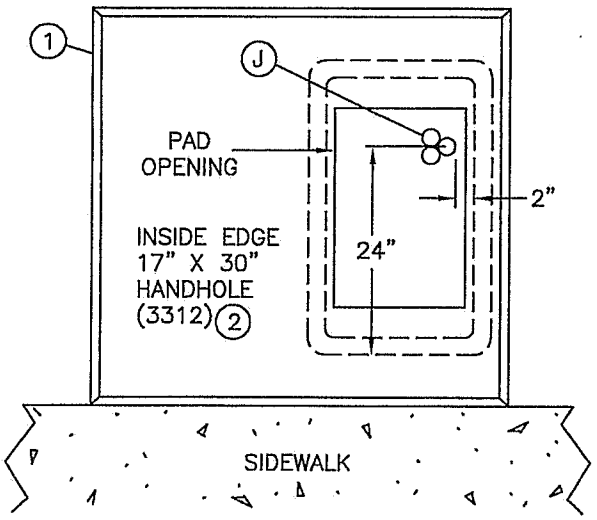


VIEW C

3512 INSTALLATION

(TOP VIEW)

SINGLE–PHASE FUSE CABINET

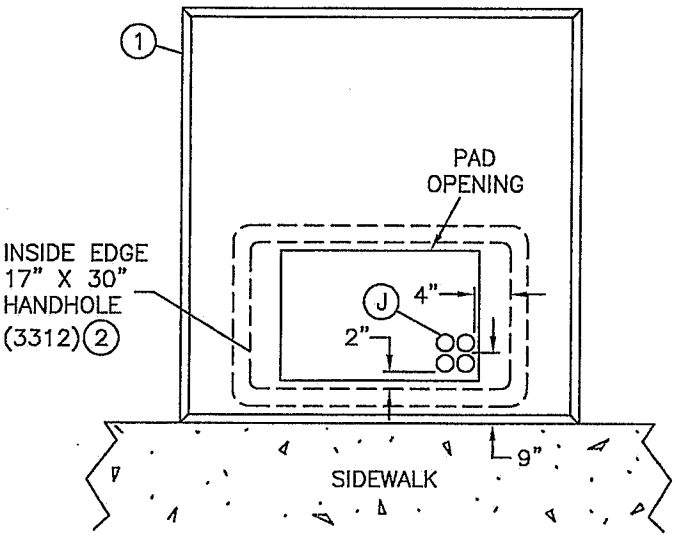


VIEW D

3522 INSTALLATION

(TOP VIEW)

SINGLE–PHASE CABLE TERMINATOR



SERVICE GUIDE	X Indicates Latest Revision	Completely Revised	New Page	Information Removed

3421.2	SDG&E ELECTRIC STANDARDS SINGLE–PHASE TRANSFORMER/UTILITY EQUIPMENT PAD	REVISION DATE 12–5–05 APPD TR / JJ

NOTES:

- TRANSFORMER COOLING FINS MAY OVERHANG REAR OF PAD BY 6 INCHES.
- FIVE INCH CONDUIT NOT ALLOWED IN THESE INSTALLATIONS.
- PAD MAY NOT BE POURED–IN–PLACE.

BILL OF MATERIAL:

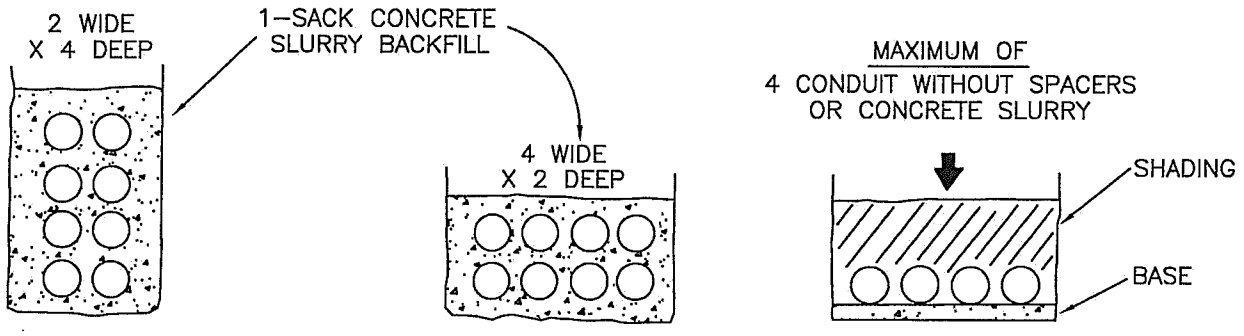
ITEM	DESCRIPTION	QUANTITY	CONST STD. OR PAGE NO.	STOCK NUMBER	ASSEMBLY UNIT	
1	PAD, SINGLE–PHASE TRANSFORMER/ UTILITY EQUIPMENT PAD	1	3421	514240	3421–1	PAD WITH 3312 HANDHOLE
2	BODY, HANDHOLE	1	3312	162426	3312–1	FC3PAD

INSTALLATION (FOR SINGLE - PHASE TRANSFORMER):

A. SET PAD LEVEL TO FINAL GRADE AND INSTALL EQUIPMENT GROUND.

(B) PLACE ALL PRIMARY AND SECONDARY CONDUITS WITHIN THE PAD OPENING AS SHOWN ABOVE. DO NOT CUT INTO THE CURVED PORTION ON THE ELBOWS. RADIUS OF CURVATURE IS 36" MINIMUM FOR 3 INCH AND 4 INCH CONDUITS. PLACE ALL CONDUIT WITH 3/0 OR LARGER CABLE TOWARDS THE REAR OF THE 12 INCH SECONDARY AREA. NOTE: PRIMARY CONDUITS IN RIGHT HAND CORNER SHALL HAVE 2" CLEARANCE FROM FRONT AND SIDE OF PAD.

(C) THE CONDUIT CONFIGURATION REQUIREMENT BETWEEN TERMINATING POINTS LIMITS THE SECONDARY CONDUIT CONFIGURATION TO 2 WIDE X 4 DEEP OR 4 WIDE X 2 DEEP (NO ONE CONDUIT IS TO BE COMPLETELY SURROUNDED ON ALL FOUR SIDES BY OTHER CONDUITS), USING SPACERS AND 1 SACK CONCRETE SLURRY BACKFILL. CONDUITS MAY ALSO BE INSTALLED SIDE BY SIDE ON THE BOTTOM OF THE TRENCH WITHOUT SPACERS OR CONCRETE SLURRY (4 CONDUITS MAX.). IN THE TRANSITION AREA WHERE THE CONDUITS FROM THE BOTTOM OF THE TRENCH START TOWARD THE SURFACE (THE STRAIGHT PORTION BY THE 90° BEND), SPACERS MAY BE REQUIRED TO ALLOW THE 90° BENDS TO ENTER STRAIGHT INTO THE PAD OPENING. AT THE SURFACE POINT, THE CONDUITS MAY BE BUNDLED TOGETHER. USE SDG&E APPROVED BASE, SHADING AND BACKFILL.



D. THE PRIMARY AND SECONDARY CONDUIT COMBINATIONS ALLOWED ARE SHOWN IN THE CHART BELOW. READDOWN DESIRED COLUMN UNTIL THE NUMBER OF RUNS BEING INSTALLED ARE LOCATED, THEN READ ACROSS THE ROW CHECKING FOR ADDITIONAL ALLOWABLE RUNS. THE SUM OF THE COLUMNS SHALL NOT EXCEED THE TOTAL CONDUITS ALLOWED.

SECONDARY CONDUIT COMBINATIONS			
2" (EB OR DB)	3" (EB OR DB)	4" (EB OR DB)	TOTAL CONDUITS ALLOWED *
–	6	–	7
2	4	–	7
3	3	–	7
4	2	–	7
7	–	–	7
1	–	4	5
–	1	4	5
1	1	3	5
–	3	2	5
–	4	1	5
4	–	3	7
5	–	2	7
6	–	1	7

PRIMARY CONDUIT COMBINATIONS		
2" (EB OR DB)	3" (EB OR DB)	TOTAL CONDUITS ALLOWED **
4	–	4
2	2	4
2	1	3
1	2	3
2	–	2
–	2	2
1	–	1
–	1	1

* SECONDARY CONDUITS MAY INCLUDE TWO ADDITIONAL ONE INCH CONDUITS FOR STREET LIGHTS.

** 1–4 OR 1–5 INCH PRIMARY CONDUIT IS ALLOWED WHEN THE CONDUIT IS EXTENED FROM AN EXISTING STUBOUT.

E. TERMINATE PRIMARY AND SECONDARY CONDUITS FLUSH WITH TOP OF PAD.

(F) WHEN THE NUMBER OF REQUIRED CONDUITS IS LESS THAN THE TOTAL CONDUITS ALLOWED IN THE TABLE, INSTALL CONDUITS IN NUMBERED SEQUENCE AS SHOWN ON 3421.2.

G. IN SOFT SOILS, A CONCRETE BACKFILL (1–SACK MIX) 12 INCHES BEYOND THE SIDE EDGES OF THE PAD AND 12 INCHES DEEP IS REQUIRED UNDER THE TRANSFORMER PAD.

INSTALLATION (FOR THREE - PHASE FUSE CABINET)

H. SET PAD LEVEL TO FINAL GRADE AND INSTALL EQUIPMENT GROUND. TERMINATE CONDUITS 3 INCHES ABOVE BOTTOM OF HANDHOLE. INSTALL CONDUITS.

(I) THE MAXIMUM PRIMARY CONDUITS ALLOWED ARE ULTIMATE 4 RUNS OF 4" CONDUIT. AS SHOWN ON PG. 3421.2.

INSTALLATION (FOR SINGLE - PHASE FUSE SWITCHING CABINET AND SINGLE - PHASE TERMINATOR)

(J) SET PAD LEVEL TO FINAL GRADE AND INSTALL EQUIPMENT GROUND. TERMINATE CONDUITS 3 INCHES ABOVE BOTTOM OF HANDHOLE. INSTALL CONDUITS AS SHOWN ON PG. 3421.2.

INSTALL CONDUITS #1 & 2 WHENEVER THERE IS JUST ONE LINE & ONE LOAD CABLE. INSTALL CONDUITS #3 & OR #4 FOR THE SECOND LOAD OR LINE CABLE (SEE STANDARD 3513 FOR CABLE INSTALLATION ON FUSE CABINET).

REFERENCE:

M. SEE STANDARD 3211 FOR PAD IDENTIFICATION.

N. SEE STANDARD 3370 OR 3371 FOR TRENCH, UTILITY POSITIONING, SHADING AND BACKFILL REQUIREMENTS.

O. SEE STANDARD 3376 FOR CONCRETE SLURRY, SHADING AND TYPE OF CONDUIT.

P. SEE STANDARD 3481 FOR BARRIER PROTECTION AND CLEARANCE.

Q. SEE STANDARD 3486 FOR SINGLE–PHASE TRANSFORMER LOCATIONS NEXT TO CATV AND/OR TELCO.

R. SEE STANDARD 3483 FOR MINIMUM OPERATING AND CLEARANCE REQUIREMENTS (PAD PLACEMENT).

S. SEE STANDARD 3484 FOR PAD INSTALLATION OF PAD–MOUNTED EQUIPMENT.

T. SEE STANDARD 3486 FOR RETAINING WALL REQUIREMENTS AND CLEARANCES FROM REVERSE SUBGRADE RETAINING WALLS.

U. SEE STANDARD 3485 AND 3487 FOR RETAINING WALLS.

V. SEE STANDARD 3512 FOR SINGLE–PHASE FUSED SWITCHING CABINET.

W. SEE STANDARD 3522 FOR SINGLE–PHASE TERMINATOR INSTALLATION.

X. SEE STANDARDS 3711, 3712 AND 3713 FOR TRANSFORMER INSTALLATIONS.

Y. SEE STANDARD 4512 FOR EQUIPMENT GROUNDING.

Z. SEE STANDARD 4514 FOR GROUNDING TELCO CONDUCTOR IN PAD–MOUNTED EQUIPMENT.

SCOPE: THIS STANDARD SHOWS THE (PREFERRED I) TRENCH GROUND WIRE INSTALLATION USED TO PROVIDE GROUNDING. THIS METHOD SHALL BE USED WHEN THE SAME PARTY IS RESPONSIBLE FOR THE CONDUIT AND PAD INSTALLATION AND WHEN A SYSTEM NEUTRAL FROM A SUBSTATION OR GROUNDING BANK IS PRESENT. USE ALTERNATE TRENCH GROUND WIRE METHOD PAGE 4510.2 WHEN A SYSTEM NEUTRAL IS NOT PRESENT. (G)

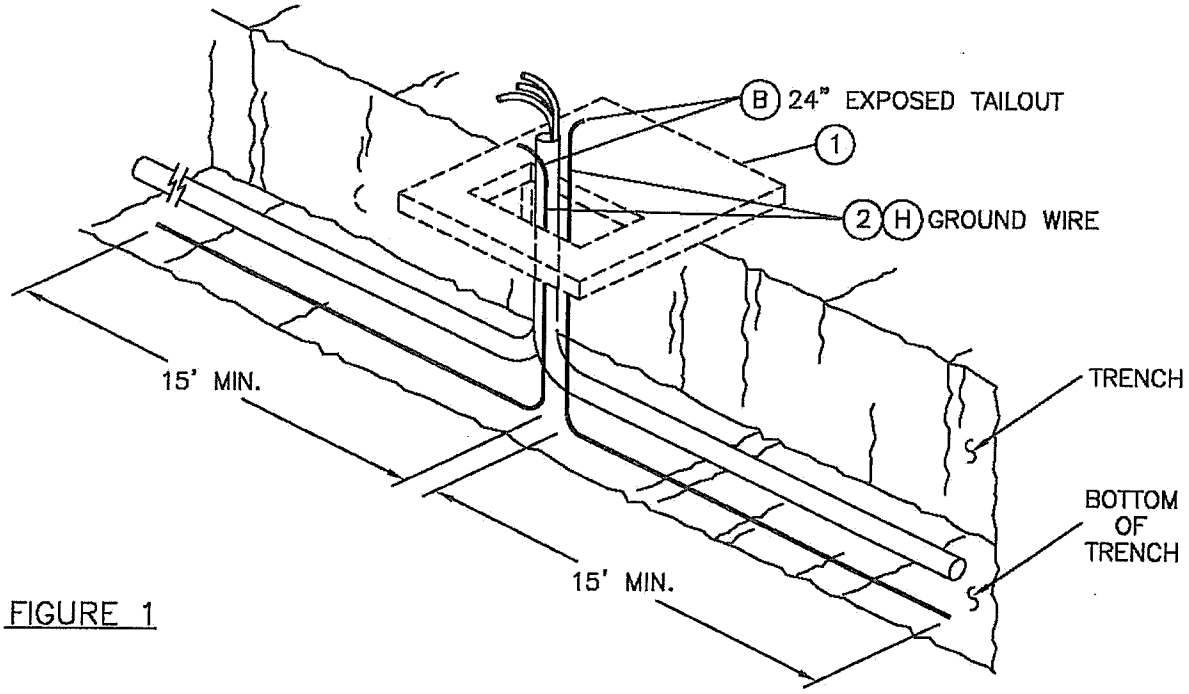
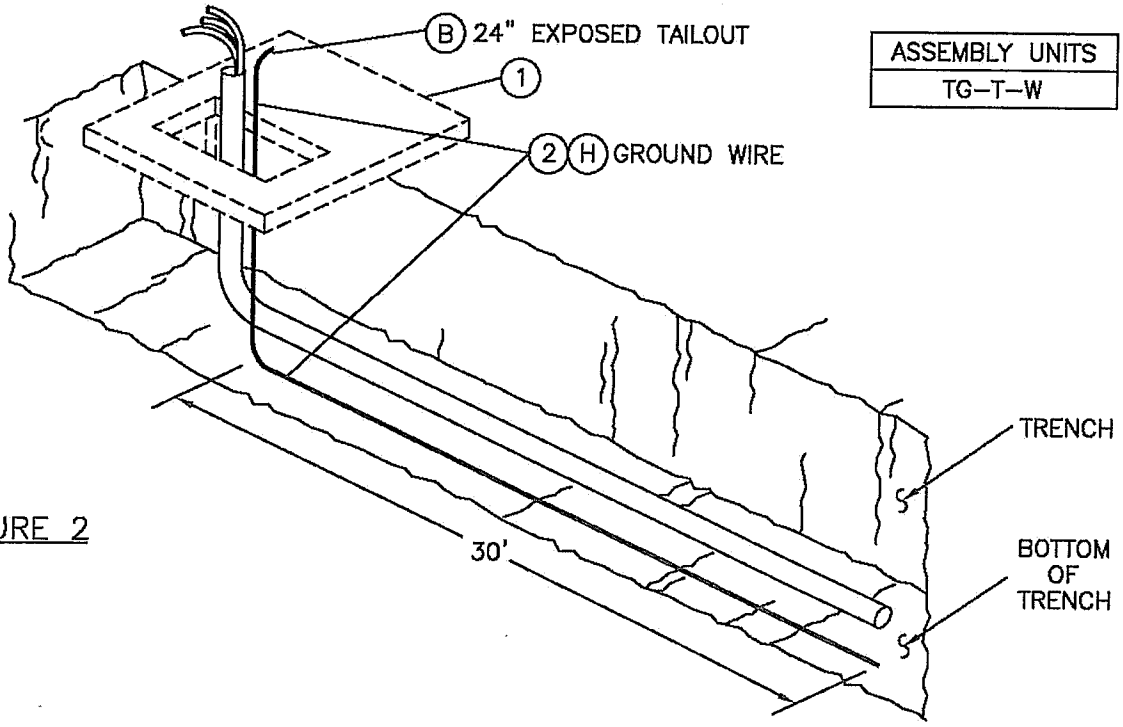


FIGURE 1



ASSEMBLY UNITS
TG–T–W

FIGURE 2

SERVICE GUIDE	Indicates Latest Revision	Completely Revised	New Page	Information Removed

REVISION	SDG&E ELECTRIC STANDARDS	
DATE 1–1–96 APPD	TRENCH GROUND WIRE (PREFERRED I)	4510.1

SCOPE: THIS STANDARD SHOWS THE ALTERNATE TRENCH GROUND WIRE INSTALLATION USED TO PROVIDE GROUNDING. THIS METHOD SHALL BE USED WHEN THE SAME PARTY IS RESPONSIBLE FOR THE CONDUIT AND PAD INSTALLATION AND WHEN A SYSTEM NEUTRAL FROM A SUBSTATION OR GROUNDING BANK IS NOT PRESENT. USE PREFERRED GROUNDING METHOD ON PAGE 4510.1 WHEN A SYSTEM NEUTRAL IS PRESENT. (G)

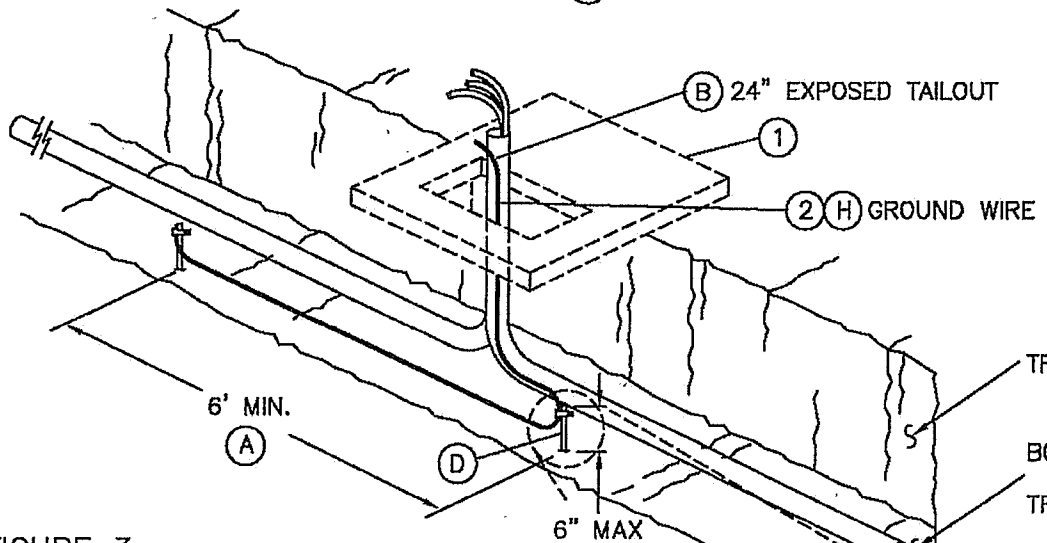


FIGURE 3

ASSEMBLY UNITS
TG–T–R

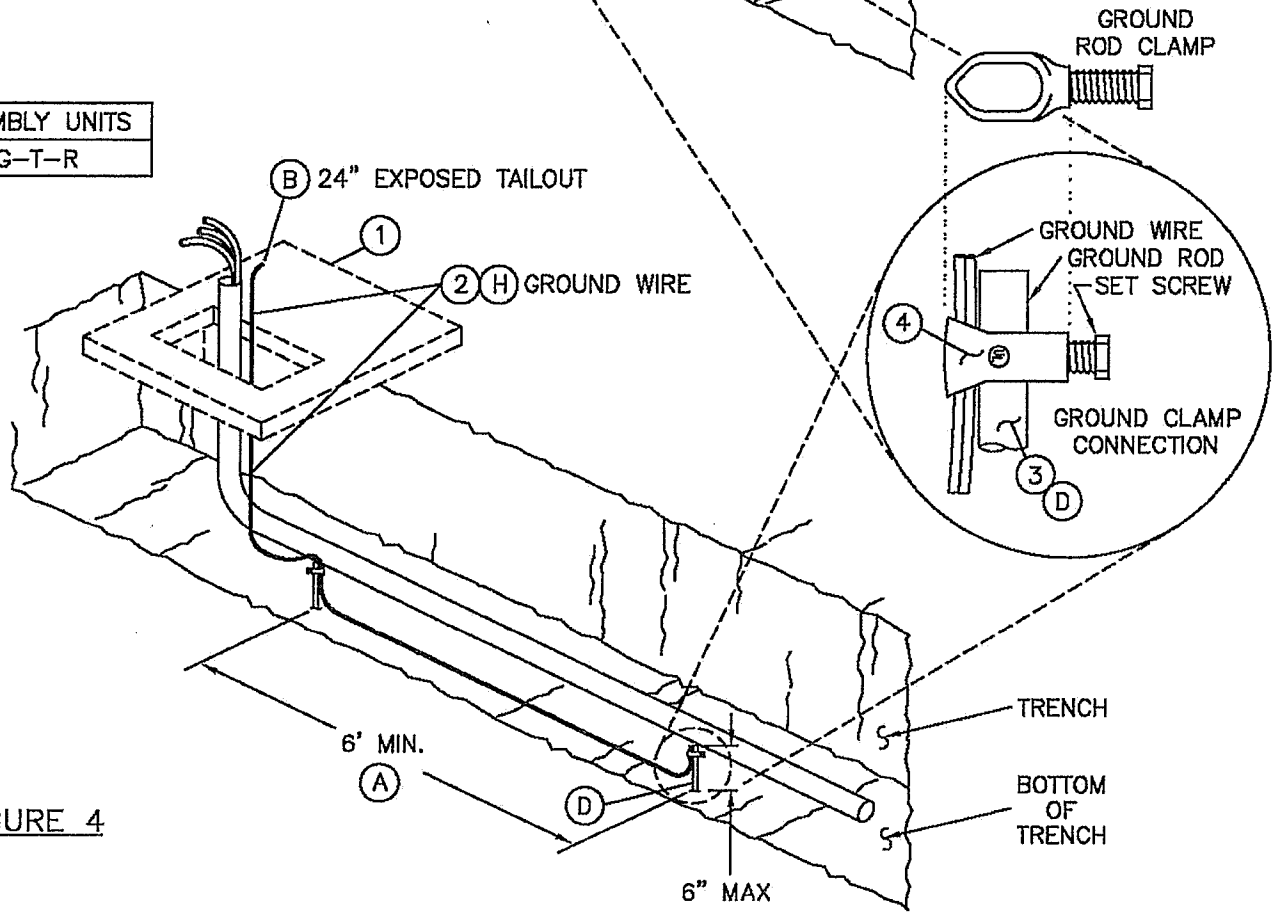


FIGURE 4

SERVICE GUIDE	Indicates Latest Revision	Completely Revised	New Page	Information Removed

SDG&E ELECTRIC STANDARDS

4510.2	TRENCH GROUND WIRE (ALTERNATE)	REVISION DATE 1–1–96 APPD

BILL OF MATERIAL:

ITEM	DESCRIPTION	QUANTITY	STOCK NUMBER	ASSEMBLY UNIT
1	PAD	1	REFER TO WORK ORDER	–
2	WIRE, BARE COPPER, #2, 7 STR. SOFT DRAWN	AS REQ'D	812816 (F)	GDWIRE
3	GROUND ROD, 5/8" X 8'–0", COPPERWELD	AS REQ'D	603072	–
4	GROUND ROD, CLAMP	AS REQ'D	230016	–

NOTES

CUSTOMERS SERVICE TRENCH:

– THE SERVICE TRENCH IS ON PRIVATE PROPERTY AND BELONGS TO THE CUSTOMER, THEREFORE, THE TRENCH GROUND WIRE SHOULD NOT BE INSTALLED IN THE CUSTOMER TRENCH. THE SITUATION IS DIFFERENT ON A RULE 16 JOB WHERE THE PAD–MOUNTED EQUIPMENT, PRIMARY/SECONDARY AND SERVICE TRENCH ARE ALL ON PRIVATE PROPERTY AND THE PAD AND CONDUIT BELONGS TO THE CUSTOMER AND REMAINS THE CUSTOMERS RESPONSIBILITY. IN THIS CASE, THE TRENCH GROUND WIRE COULD BE INSTALLED IN EITHER THE PRIMARY/SECONDARY OR THE SERVICE TRENCH.

INSTALLATION:

(A) GROUND RODS TO HAVE A 6 FOOT MINIMUM SEPARATION.

(B) LEAVE 24 INCHES OF WIRE (EXPOSED TAILOUT) ABOVE THE TOP OF FINAL GRADE.

C. USE EQUIPMENT GROUNDING INSTALLATION (PREFERRED II) ON STANDARD PAGE 4512.1 IF TRENCH GROUND WIRE WAS NOT INSTALLED PRIOR TO BACKFILLING THE TRENCH.

(D) LOCATE GROUND RODS SO THEY DO NOT TOUCH CONDUITS. GENERAL ORDER 128 REQUIRES GROUND RODS TO BE DRIVEN. THEY MAY BE DRIVEN AT AN ANGLE IF IT IS DIFFICULT IF NOT IMPOSSIBLE TO DRIVE STRAIGHT DOWN.

REFERENCE:

E. SEE STANDARD 3484.1 FOR PAD INSTALLATION OF PAD–MOUNTED EQUIPMENT.

(F) SEE STANDARD 4002.2 FOR WIRE INFORMATION.

(G) SEE STANDARD PAGE 4512.1 FOR (PREFERRED II) EQUIPMENT GROUNDING INSTALLATION WHEN DIFFERENT PARTIES ARE RESPONSIBLE FOR THE CONDUIT AND PAD INSTALLATION.

(H) SEE STANDARD 4512.2 FOR EQUIPMENT GROUNDING INSTALLATION.