

C & C TRAFFIC NOTES

- A PERMIT SHALL BE OBTAINED FROM THE DEPARTMENT OF TRANSPORTATION SERVICES BEFORE WORK ON ANY PORTION OF A PUBLIC STREET OR HIGHWAY MAY BEGIN.
- THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL NECESSARY SIGNS AND OTHER PROTECTIVE FACILITIES, WHICH SHALL CONFORM WITH THE "HAWAII ADMINISTRATION RULES GOVERNING THE USE OF TRAFFIC CONTROL DEVICES AT WORK SITES ON OR ADJACENT TO PUBLIC STREETS AND HIGHWAYS" ADOPTED BY THE DIRECTOR OF TRANSPORTATION, AND THE CURRENT U.S. FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREET AND HIGHWAYS, PART IV TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS".
- WORK ON ANY CITY STREET AREA MAY BE PERFORMED ONLY BETWEEN THE HOURS OF 9:00 A.M. TO 3:00 P.M., MONDAY THROUGH FRIDAY, UNLESS OTHERWISE PERMITTED BY THE DEPARTMENT OF TRANSPORTATION SERVICES. DURING WORKING HOURS, THE CONTRACTOR SHALL PROVIDE ONE LANE FOR THROUGH TRAFFIC. DURING NON-WORKING HOURS, ALL TRENCHES SHALL BE COVERED WITH A SAFE NON-SKID BRIDGING MATERIAL AND ALL LANES SHALL BE OPEN TO TRAFFIC.
- AS REQUIRED BY THE DEPARTMENT OF TRANSPORTATION SERVICES, THE CONTRACTOR SHALL PROVIDE OFF-DUTY POLICE OFFICERS TO CONTROL THE FLOW OF TRAFFIC.
- WHERE PEDESTRIAN WALKWAYS EXIST, THEY SHALL BE MAINTAINED IN PASSABLE CONDITION OR OTHER FACILITIES FOR PEDESTRIANS SHALL BE PROVIDED. PASSAGE BETWEEN WALKWAYS AT INTERSECTIONS SHALL LIKEWISE BE PROVIDED.
- SPECIAL ATTENTION IS CALLED TO PRIVATE AND PUBLIC RIGHTS-OF-WAY. DRIVEWAYS SHALL BE KEPT OPEN UNLESS THE OWNERS OF THE PROPERTY USING THESE RIGHT-OF-WAY ARE OTHERWISE PROVIDED FOR SATISFACTORILY. DURING THE CONSTRUCTION OF DRIVEWAYS AND DRIVEWAY RAMPS, SATISFACTORY ACCESSES SHALL BE PROVIDED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL REFERENCE, TO THE APPROVAL OF THE DEPARTMENT OF TRANSPORTATION SERVICES, ALL EXISTING TRAFFIC SIGNS, POSTS AND PAVEMENT MARKINGS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL REPLACE OR REPAIR ALL TRAFFIC SIGNS, POSTS, AND PAVEMENT MARKINGS DISTURBED BY HIS ACTIVITIES. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF TRANSPORTATION SERVICES AT 523-4029 ONE (1) WEEK PRIOR TO ANY WORK TO BE DONE ON SIGNS, POSTS AND PAVEMENT MARKINGS.
- NO MATERIAL AND/OR EQUIPMENT SHALL BE STOCKPILED OR OTHERWISE STORED WITHIN STREET RIGHTS-OF-WAY EXCEPT AT LOCATIONS DESIGNATED IN WRITING AND APPROVED BY DEPARTMENT OF TRANSPORTATION SERVICES.
- THE CONTRACTOR SHALL CONTACT THE DEPARTMENT OF TRANSPORTATION SERVICES, PARKING METER SECTION AT 523-4314 AT LEAST TWO (2) WORKING DAYS PRIOR TO ANY PARKING METER WORK.
- CONTRACTOR SHALL NOTIFY DTS, MR ED SNIFFEN OR MR TRASK HUDDY AT 848-4571 TWO (2) WEEKS PRIOR TO CONSTRUCTION, INFORMING THEM OF THE LOCATION, SCOPE OF WORK, PROPOSED CLOSURE OF ANY STREET OR TRAFFIC LANES, AND THE NEED TO RELOCATE ANY BUS STOP.

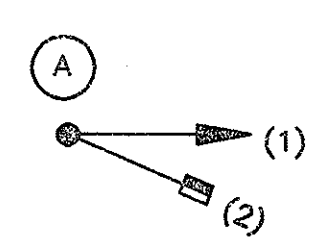
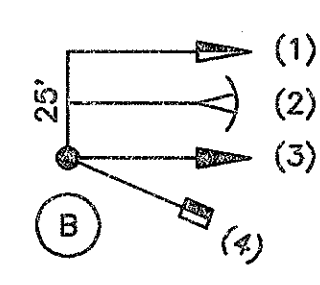
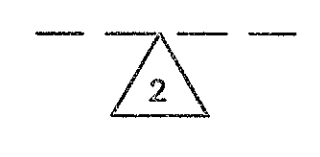
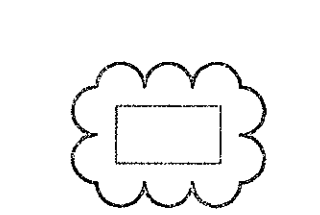
C & C ELECTRICAL AND MAINTENANCE SERVICES DIVISION NOTES:

- THE CONTRACTOR SHALL NOTIFY THE JOINT POLE COMMITTEE TWO (2) WEEKS IN ADVANCE OF ANY RELOCATION OF UTILITY POLE(S) THAT MAY BE NECESSARY.
- THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL & MAINTENANCE SERVICES DIVISION, DEPARTMENT OF TRANSPORTATION SERVICES, THREE (3) WORKING DAYS PRIOR TO COMMENCING WORK ON THE STREET LIGHTING SYSTEM. (PHONE: 527-5002).
- THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL & MAINTENANCE SERVICES DIVISION, DEPARTMENT OF TRANSPORTATION SERVICES, THREE (3) WORKING DAYS PRIOR TO COMMENCING WORK ON THE TRAFFIC SIGNAL SYSTEM. (PHONE: 527-5007).
- THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL & MAINTENANCE SERVICES DIVISION, DEPARTMENT OF TRANSPORTATION SERVICES, THREE (3) WORKING DAYS PRIOR TO COMMENCING WORK ON THE FIBER OPTIC SYSTEM. (PHONE: 527-5007).
- THE STREET LIGHTING, TRAFFIC SIGNAL, AND FIBER OPTIC SYSTEMS SHALL BE KEPT OPERATIONAL DURING CONSTRUCTION. ANY RELOCATION OR CHANGE OVER REQUIRED SHALL BE APPROVED BY THE ELECTRICAL & MAINTENANCE SERVICES DIVISION, DEPARTMENT OF TRANSPORTATION SERVICES, AND PERFORMED AND PAID FOR BY THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO EXISTING STREET LIGHTING, TRAFFIC SIGNAL, AND FIBER OPTIC FACILITIES, INCLUDING THE TRAFFIC SIGNAL INTERCONNECT SYSTEM, AND ANY AND ALL DAMAGES TO THESE FACILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT HIS COST IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY AND COUNTY OF HONOLULU.

GENERAL NOTES ON TRAFFIC SIGNAL SYSTEM

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1985, OF THE HAWAII STATE DEPARTMENT OF TRANSPORTATION, EXCEPT AS MODIFIED HEREIN AND IN THE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL VERIFY WITH THE RESPECTIVE UTILITY COMPANIES AND GOVERNMENT AGENCIES, THE LOCATIONS OF ALL ELECTRIC, TELEPHONE, TRAFFIC SIGNAL, STREET LIGHT, FIRE ALARM, GAS, WATER, SEWER, DRAIN AND OTHER LINES CROSSING THE EXCAVATION PATH OR IN EXCAVATION AREAS.
- THE LOCATIONS OF ALL NEW AND EXISTING TRAFFIC SIGNAL FACILITIES ON THE DRAWINGS ARE APPROXIMATE. LOCATIONS OF EXISTING FACILITIES SHALL BE VERIFIED BY THE CONTRACTOR IN ANY MANNER HE DEEMS EXPEDIENT. EXACT LOCATION OF NEW FACILITIES SHALL BE STAKED OUT BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO ANY EXCAVATION.
- ALL STRUCTURES, PAVEMENTS, UTILITIES, LANDSCAPING AND OTHER TOPOGRAPHICAL FEATURES SHOWN ON THE DRAWINGS ARE EXISTING OR NEW AND ARE TO REMAIN IN THE FINISHED NOTED UNLESS NOTED OR INDICATED OTHERWISE.
- THE CONTRACTOR SHALL NOTIFY ALL AFFECTED UTILITY COMPANIES AND GOVERNMENT AGENCIES OF THEIR INTENT TO BEGIN CONSTRUCTION ON ANY INTERSECTION OR STREET AT LEAST TWO (2) WEEKS PRIOR TO THE START OF SUCH CONSTRUCTION.
- THE CONTRACTOR MAY CLOSE ONLY ONE LANE OF TRAFFIC AT A TIME FOR ANY REASON. DURING THE PEAK TRAFFIC PERIODS FROM 6:00 TO 9:00 A.M. AND FROM 3:00 TO 6:00 P.M., MONDAY THROUGH FRIDAY, ALL LANES SHALL BE KEPT OPEN AND MAINTAINED AT ALL TIMES.
- THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, MARKERS, CONES, AND OTHER PROTECTIVE FACILITIES AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION AND FOR THE CONVENIENCE AND SAFETY OF PUBLIC TRAFFIC. ALL SUCH PROTECTIVE FACILITIES AND PRECAUTIONS TO BE TAKEN SHALL CONFORM WITH THE "ADMINIS-TRATIVE RULES OF HAWAII GOVERNING THE USE OF TRAFFIC CONTROL DEVICES AT WORK SITES ON OR ADJACENT TO PUBLIC STREETS AND HIGHWAYS" ADOPTED BY THE DIRECTOR OF TRANSPORTATION, AND THE CURRENT U.S. FEDERAL HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, PART VI - TRAFFIC CONTROL FOR HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS". IF LANE CLOSURES ARE REQUIRED DURING CONSTRUCTION, A TRAFFIC CONTROL PLAN SHALL BE INCOR-PORATED INTO THE CONSTRUCTION PLANS AND MUST BE APPROVED BY THE HIGHWAYS DIVISION.
- ANY EXISTING IMPROVEMENTS WITHIN THE CITY AND COUNTY OF HONOLULU AND THE STATE OF HAWAII R/W WHICH ARE TO REMAIN IN THE FINISHED WORK BUT WHICH ARE DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CITY AND COUNTY OF HONOLULU.
- NO MATERIAL AND/OR EQUIPMENT SHALL BE STOCKPILED OR OTHER-WISE STORED WITHIN STREET AND HIGHWAY RIGHTS-OF-WAY EXCEPT AT LOCATIONS DESIGNATED IN WRITING AND APPROVED BY THE ENGINEER.
- THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ADEQUATE, SAFE, NON-SKID BRIDGING MATERIAL OVER THE TRENCH, INCLUDING SHOR-ING, WHEN TRENCHING IN PAVEMENT AREAS TO HANDLE ALL TYPES OF VEHICULAR TRAFFIC. HE SHALL PROVIDE ALL MEASURES NECESSARY TO PREVENT THE DISPLACEMENT OF SUCH BRIDGING MATERIAL UNDER ALL CONDITIONS OF VEHICULAR TRAFFIC.
- NO TRENCH SHALL BE OPENED MORE THAN 100 FEET IN ADVANCE OF THE INSTALLED AND TESTED PIPE AND/OR DUCTLINE.
- LONGITUDINAL DRAINAGE ALONG THE ROADWAY SHALL BE MAINTAINED.
- ALL REGULATORY, GUIDE AND CONSTRUCTION SIGNS AND BARRICADES SHALL BE OF HIGH INTENSITY REFLECTIVE SHEETING.

LEGEND FOR NEW WORK

-  NEW TYPE "A" TRAFFIC SIGNAL PULLBOX (TSPB).
-  NEW TYPE "B" TRAFFIC SIGNAL PULLBOX (TSPB).
-  NEW TYPE 170 CONTROLLER ASSEMBLY.
-  NEW 10' TRAFFIC SIGNAL STANDARD (A) WITH NEW
(1) STANDARD VEHICULAR SIGNAL FACE.
(2) PEDESTRIAN SIGNAL FACE.
-  NEW TRAFFIC SIGNAL STANDARD (B) WITH 25' MAST ARM AND NEW
(1) PROGRAMMED VISIBILITY SIGNAL FACE.
(2) OPTICAL DETECTOR.
(3) STANDARD VEHICULAR SIGNAL FACE.
(4) PEDESTRIAN SIGNAL FACE.
-  NEW AND EXISTING UNDERGROUND CONDUIT(S) WITH SIZES, NUMBERS AND TYPES OF NEW CABLES AS INDICATED ON SCHEDULE. THE NUMBER DESIGNATION WITHIN THE TRIANGLE SHALL APPLY ONLY TO THE PARTICULAR DRAWING SHEET ON WHICH IT APPEARS.
-  REMOVE AND/OR DEMOLISH ENCLOSED STRUCTURE, SIGN, STRIPING TRAFFIC SIGNAL FACE, TRAFFIC SIGNAL STANDARD OR PAINT SYMBOL ON PAVEMENT.

TYPES OF TRAFFIC SIGNAL STANDARDS

- I-7 TYPE I STANDARD, 7 FEET HIGH
- I-10 TYPE I STANDARD, 10 FEET HIGH
- II-25 TYPE II (MAST ARM TYPE) STANDARD WITH 25 FOOT MAST ARM

TYPES OF CABLES

- TYPE 1 SIGNAL LOOP CABLE: STRANDED, NO. 14, 26 CONDUCTORS.
- TYPE 2 DETECTOR LEAD-IN CABLE AND PEDESTRIAN PUSH BUTTON CIRCUIT CABLE: STRANDED, NO. 14, 2 CONDUCTORS.
- TYPE 3 INTERCONNECT CABLE: SOLID, NO. 19, 12 PAIRS.
- TYPE 4 LOOP SENSOR CABLE: STRANDED, NO. 14, SINGLE CONDUCTOR, CONFORMING TO IMSA SPEC 51-5.
- TYPE 5 SERVICE CABLE, STRANDED, NO. 14, SINGLE CONDUCTUR, FROM SIGNAL LOOP TO SIGNAL FACE.
- TYPE 6 SERVICE CABLE, SOLID, NO. 6, 3 CONDUCTORS, FROM POWER SOURCE TO CONTROLLER.
- TYPE 7 OPTICAL DETECTOR CABLE FROM OPTICAL DETECTOR TO OPTICAL DISCRIMINATOR IN CONTROLLER CABINET; 3 CONDUCTOR #20 AWG STRANDED COPPER IN BERKTEK TYPE B SHIELDED JACKET AND ONE #20 AWG BARE STRANDED GROUND.

TYPES OF SIGNAL FACES

- H + M = PEDESTRIAN SIGNAL FACE, HAND & MAN.
- R + Y + G = 3-SECTION VEHICULAR SIGNAL FACE: RED, YELLOW AND GREEN.
- R → + Y → + G → = 3-SECTION VEHICULAR SIGNAL FACE: RED ARROW, YELLOW ARROW AND GREEN ARROW.
- P(R + Y + G →) = 3-SECTION PROGRAMMED VISIBILITY VEHICULAR SIGNAL FACE: RED, YELLOW AND GREEN ARROW.

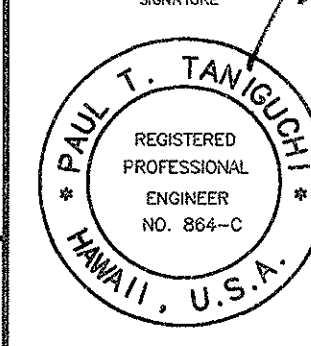
ABBREVIATIONS

- TSS = TRAFFIC SIGNAL STANDARD.
- TSPB = TRAFFIC SIGNAL PULLBOX.
- SLP = STREET LIGHT ON METAL POLE.
- PP = WOODEN UTILITY POLE.
- PPSL = STREET LIGHT ON WOODEN UTILITY POLE.

REFER TO STATE OF HAWAII DEPARTMENT OF TRANSPORTATION STANDARD PLANS		
DESCRIPTION	SHT. NO.	DATE
Miscellaneous Sign Details	TE-01	07/01/86
Miscellaneous Signs	TE-06	07/01/87
Traffic Signal System Miscellaneous Details	TE-38	07/01/86
Traffic Signal System Miscellaneous Details	TE-39	07/01/86
Pullboxes	TE-41	07/01/86

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Paul T. Taniguchi
SIGNATURE



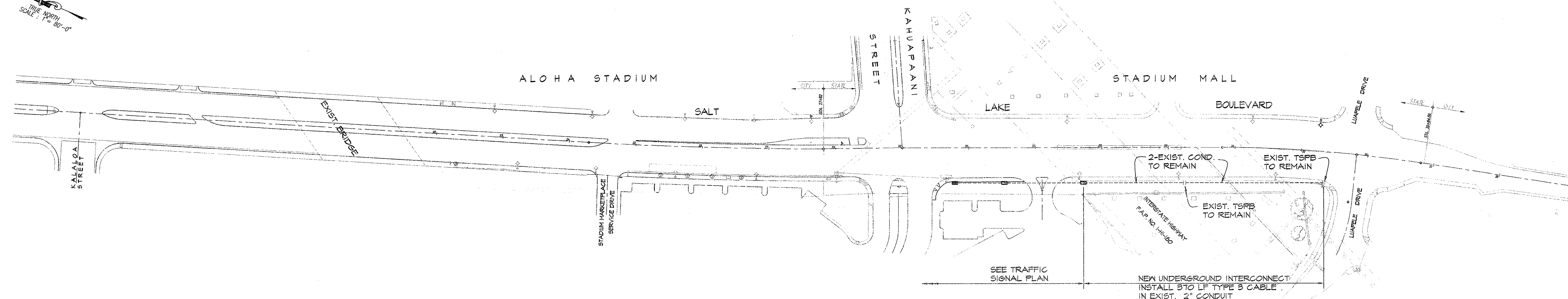
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OF 7

RECORD DRAWINGS

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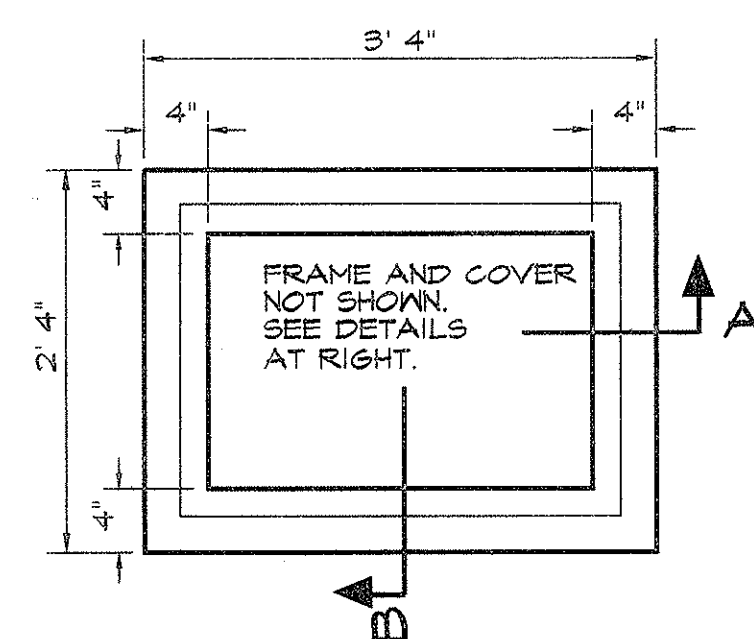
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SALT LAKE BOULEVARD IMPROVEMENTS AT STADIUM MARKETPLACE UNDER THE PROVISIONS OF ORDINANCE NO. 2412, AS AMENDED T.M.K.: 9 - 9 -02 HALAWA, EWA, OAHU, HAWAII					
TRAFFIC SIGNAL SYSTEM					
GENERAL NOTES					
ENGINEER	PTT	DRAWN BY	KTN	CHECKED BY	PTT
APPROVED BY: <i>James L. Young</i> 11/16/93 CHIEF ELECTRICAL & MAINTENANCE SERVICES DIVISION DEPT. OF TRANSPORTATION SERVICES					

TRUE NORTH
SCALE: 1" = 80'-0"



STADIUM MARKETPLACE

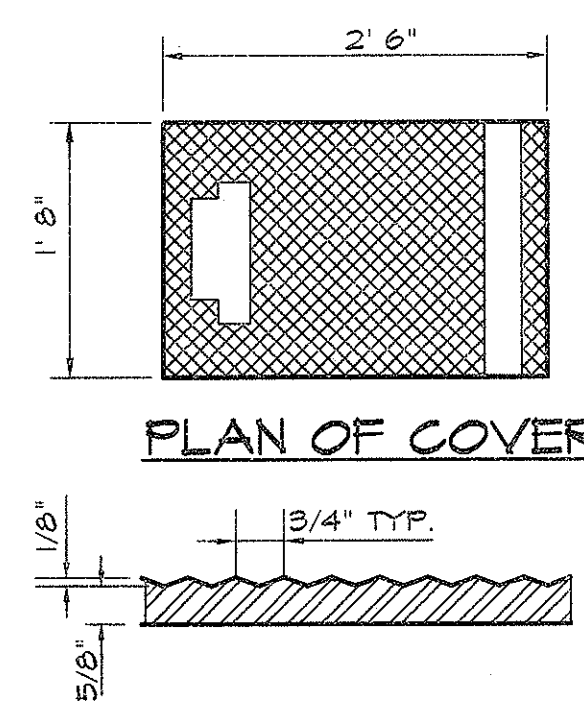
INTERCONNECT PLAN



PLAN OF PULLBOX

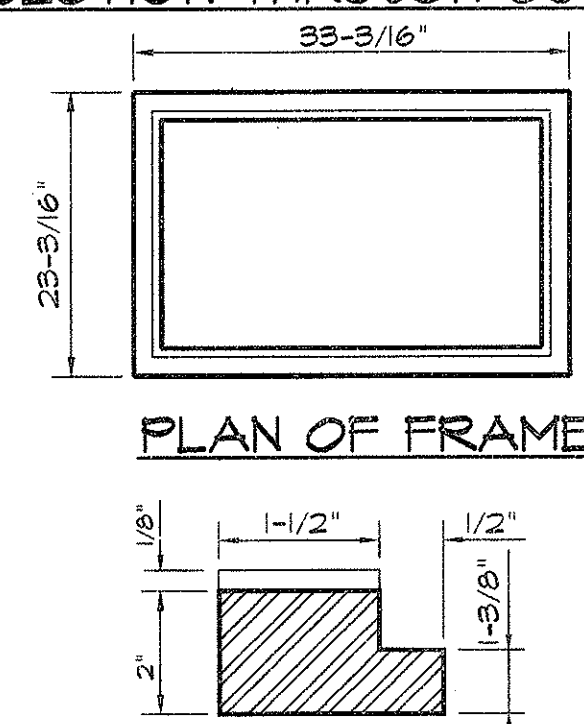
NOTES:

1. ALL CONCRETE SHALL BE CLASS "B".
2. CONCRETE BRICKS MAY BE USED IN LIEU OF CONCRETE UNLESS OTHERWISE SPECIFIED.
3. PROVIDE GROUND ROD IN ALL PULLBOXES ADJACENT TO STANDARDS, PEDESTALS, CONTROLLERS AND OTHER SPECIFIED LOCATIONS.
4. DETAILS NOT SHOWN OR NOTED SHALL BE IDENTICAL TO THOSE FOR TYPE "B" TSPB'S OF THE STATE DOT STANDARD DETAILS.



PLAN OF COVER

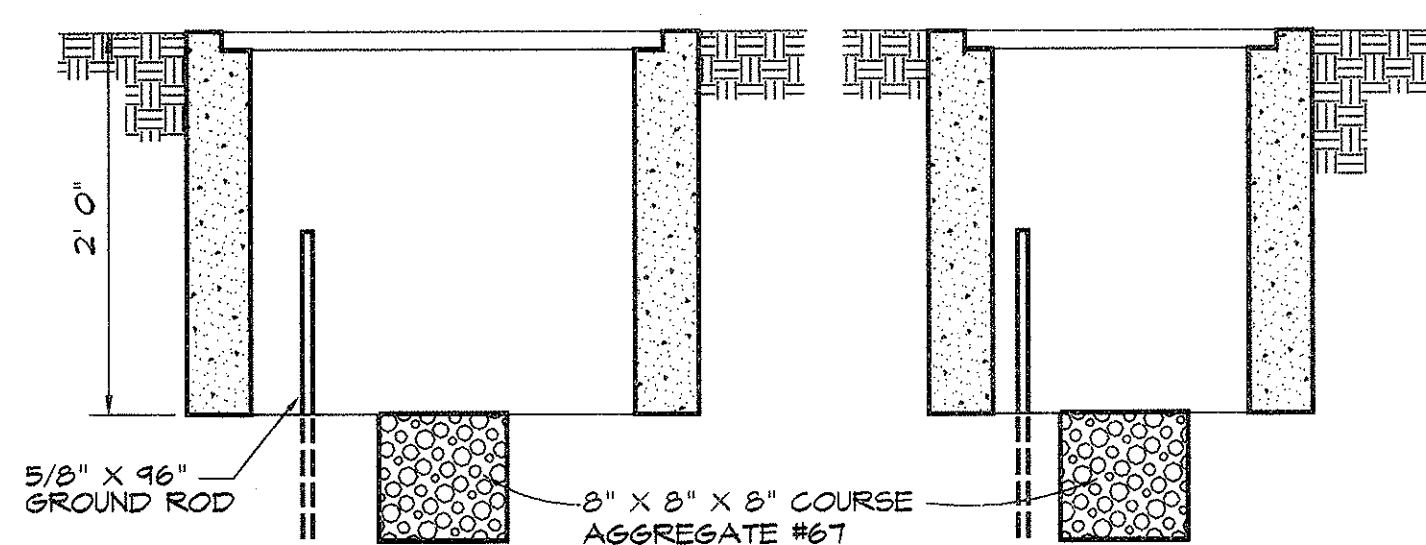
SECTION THROUGH COVER



PLAN OF FRAME

SECTION THROUGH FRAME

TSPB COVER DETAILS

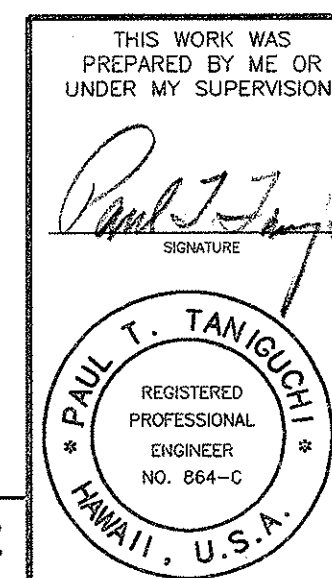


SECTION A-A

SECTION B-B

TYPE "X" PULLBOX DETAILS

(SIMILAR TO C & C TYPE "C" TSPB)



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OF 7

REVISION	DATE	DESCRIPTION	BY	APPR'D.	
GRAY, HONG, BILLS & ASSOCIATES, INC. CONSULTING ENGINEERS 119 MERCHANT ST. SUITE 607					
SALT LAKE BOULEVARD IMPROVEMENTS AT STADIUM MARKETPLACE UNDER THE PROVISIONS OF ORDINANCE NO. 2412, AS AMENDED T.M.K.: 9 - 9 - 02 HALAWA, EWA, OAHU, HAWAII					
TRAFFIC SIGNAL SYSTEM INTERCONNECT PLAN					
ENGINEER	PTT	DRAWN BY	KTN	CHECKED BY	PTT
APPROVED BY: <i>Paul T. Taniguchi</i> 11/16/92 DATE					
ELECTRICAL & MAINTENANCE SERVICES DIVISION DEPT. OF TRANSPORTATION SERVICES					

RECORD DRAWINGS

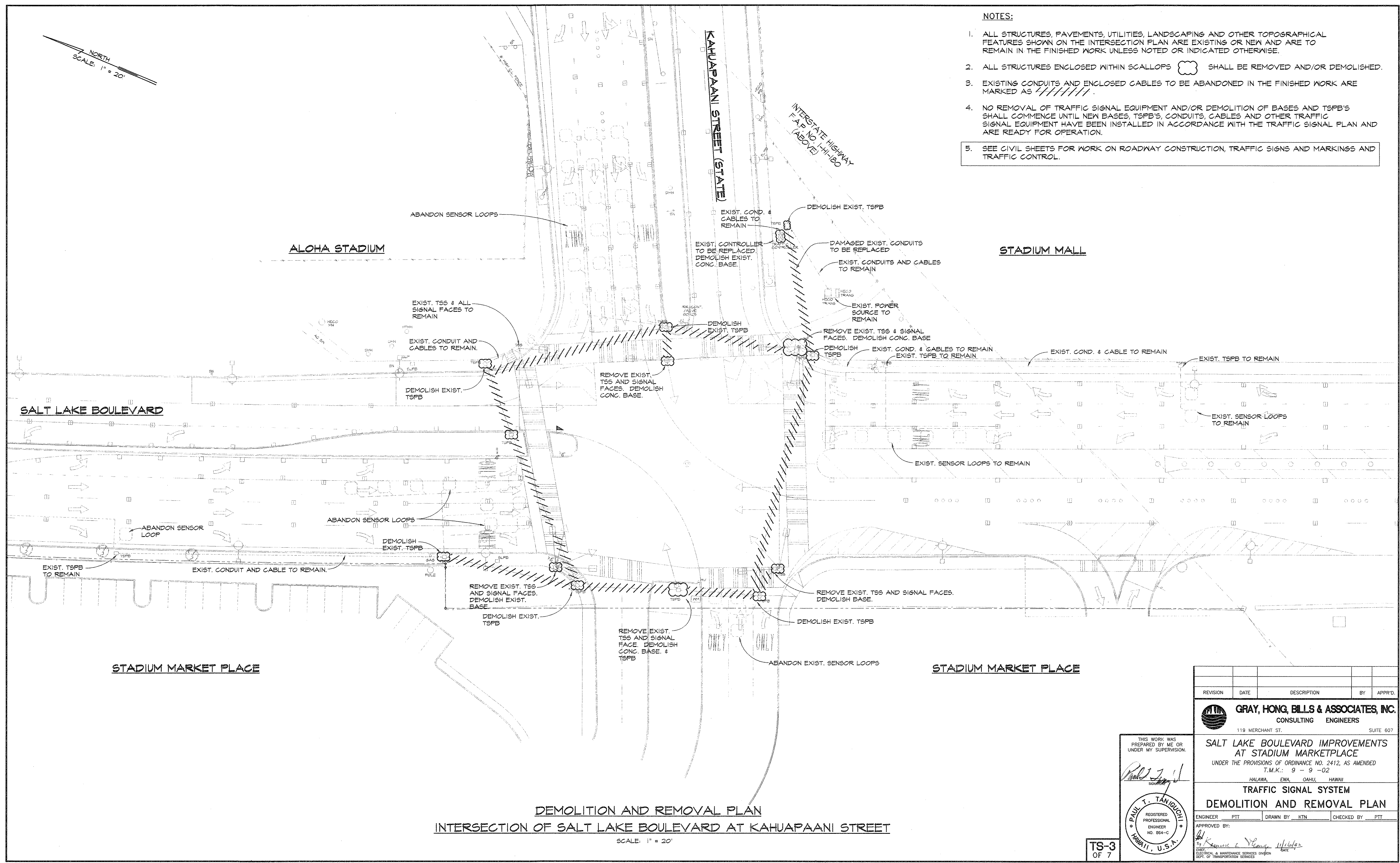
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SHEET 12 OF 20 SHEETS

NORTH
SCALE: 1" = 20'

NOTES:

1. ALL STRUCTURES, PAVEMENTS, UTILITIES, LANDSCAPING AND OTHER TOPOGRAPHICAL FEATURES SHOWN ON THE INTERSECTION PLAN ARE EXISTING OR NEW AND ARE TO REMAIN IN THE FINISHED WORK UNLESS NOTED OR INDICATED OTHERWISE.
2. ALL STRUCTURES ENCLOSED WITHIN SCALLOPS SHALL BE REMOVED AND/OR DEMOLISHED.
3. EXISTING CONDUITS AND ENCLOSED CABLES TO BE ABANDONED IN THE FINISHED WORK ARE MARKED AS \\\
4. NO REMOVAL OF TRAFFIC SIGNAL EQUIPMENT AND/OR DEMOLITION OF BASES AND TSPB'S SHALL COMMENCE UNTIL NEW BASES, TSPB'S, CONDUITS, CABLES AND OTHER TRAFFIC SIGNAL EQUIPMENT HAVE BEEN INSTALLED IN ACCORDANCE WITH THE TRAFFIC SIGNAL PLAN AND ARE READY FOR OPERATION.
5. SEE CIVIL SHEETS FOR WORK ON ROADWAY CONSTRUCTION, TRAFFIC SIGNS AND MARKINGS AND TRAFFIC CONTROL.



DEMOLITION AND REMOVAL PLAN
INTERSECTION OF SALT LAKE BOULEVARD AT KAHUAPAANI STREET
SCALE: 1" = 20'

REVISION	DATE	DESCRIPTION	BY	APPR'D.

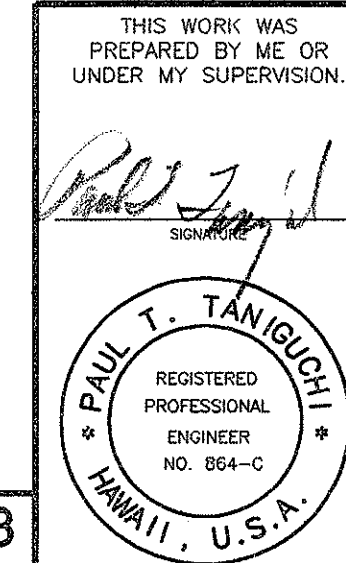
GRAY, HONG, BILLS & ASSOCIATES, INC.
CONSULTING ENGINEERS
119 MERCHANT ST. SUITE 607

SALT LAKE BOULEVARD IMPROVEMENTS AT STADIUM MARKETPLACE
UNDER THE PROVISIONS OF ORDINANCE NO. 2412, AS AMENDED
T.M.K.: 9 - 9 - 02
HALAWA, EWA, OAHU, HAWAII

**TRAFFIC SIGNAL SYSTEM
DEMOLITION AND REMOVAL PLAN**

ENGINEER PTT DRAWN BY KTN CHECKED BY PTT

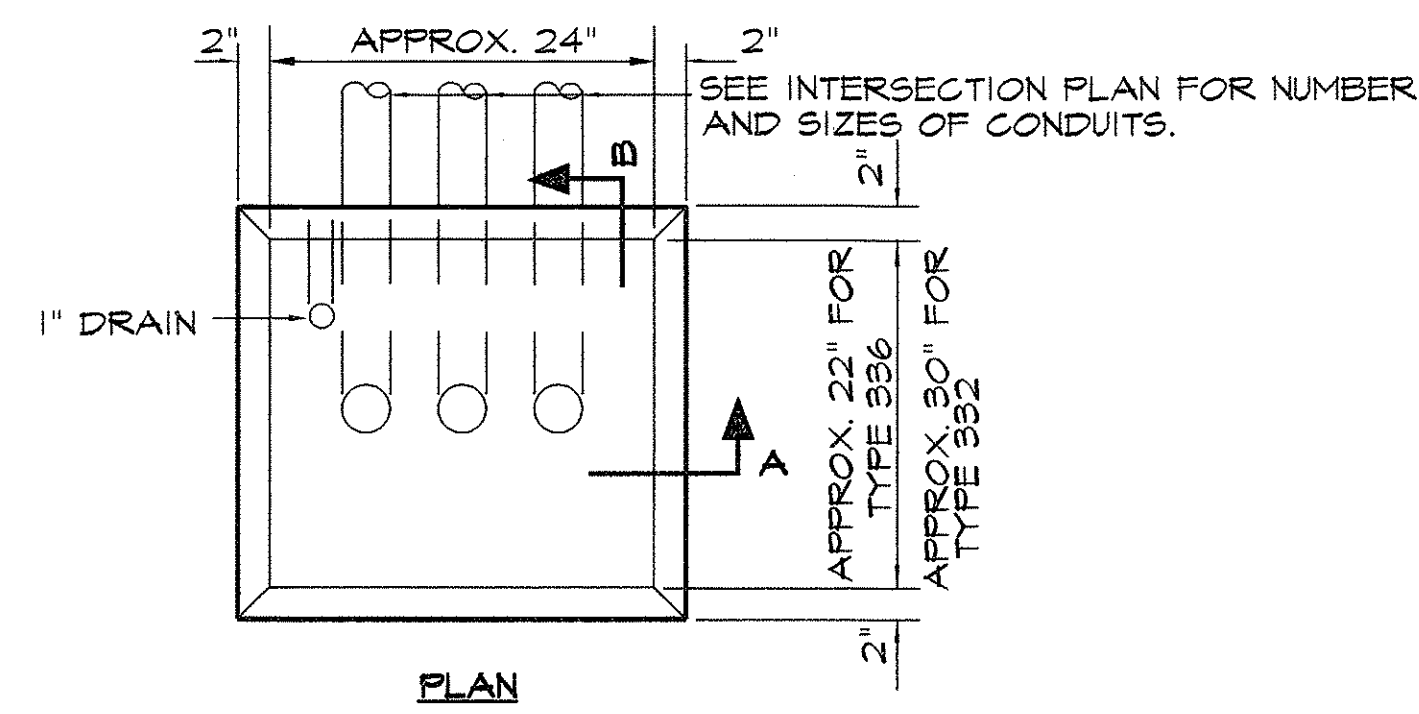
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DATE: 11/16/93
ELECTRICAL & MAINTENANCE SERVICES DIVISION
DEPT. OF TRANSPORTATION SERVICES



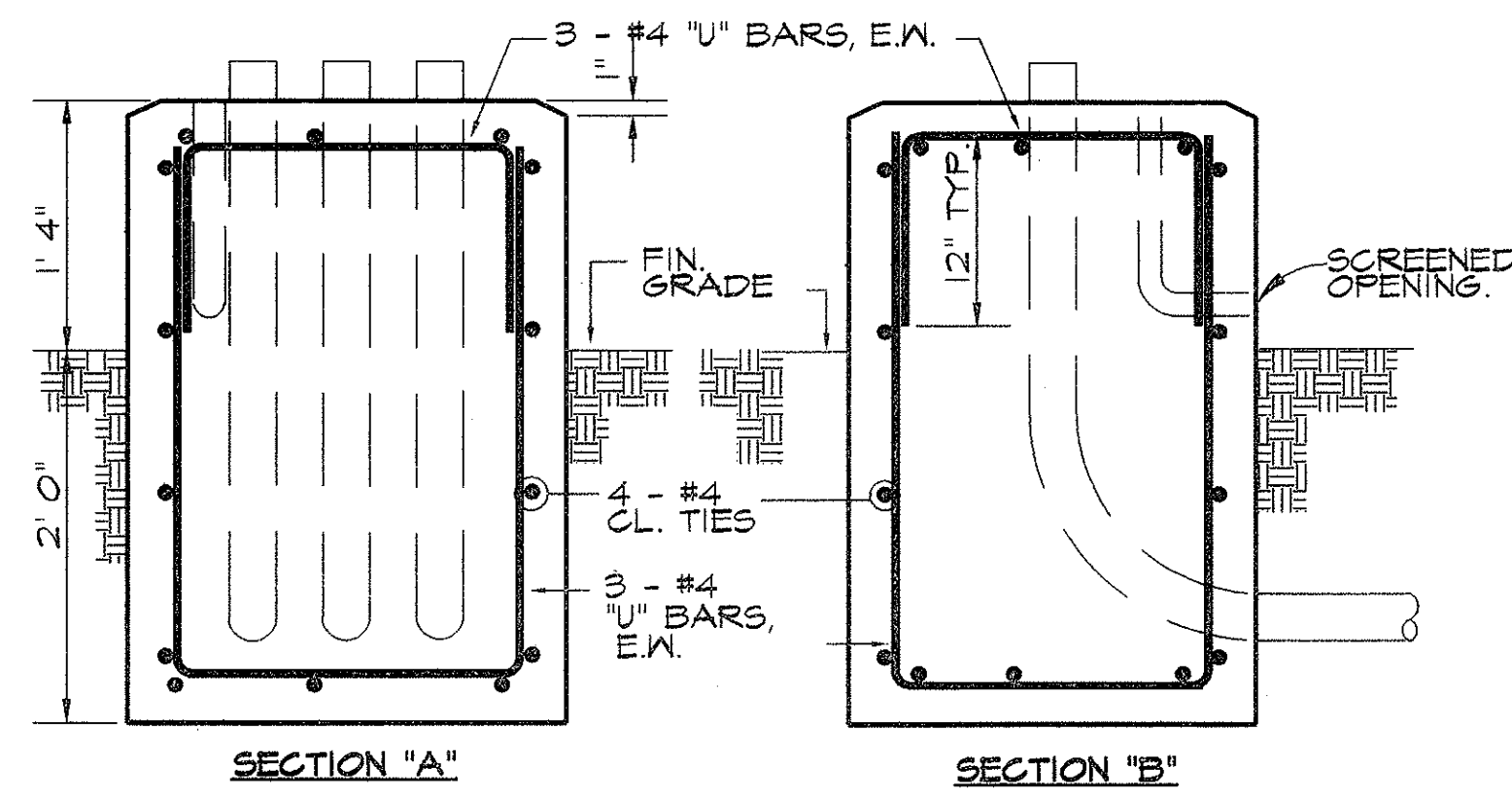
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OF 7

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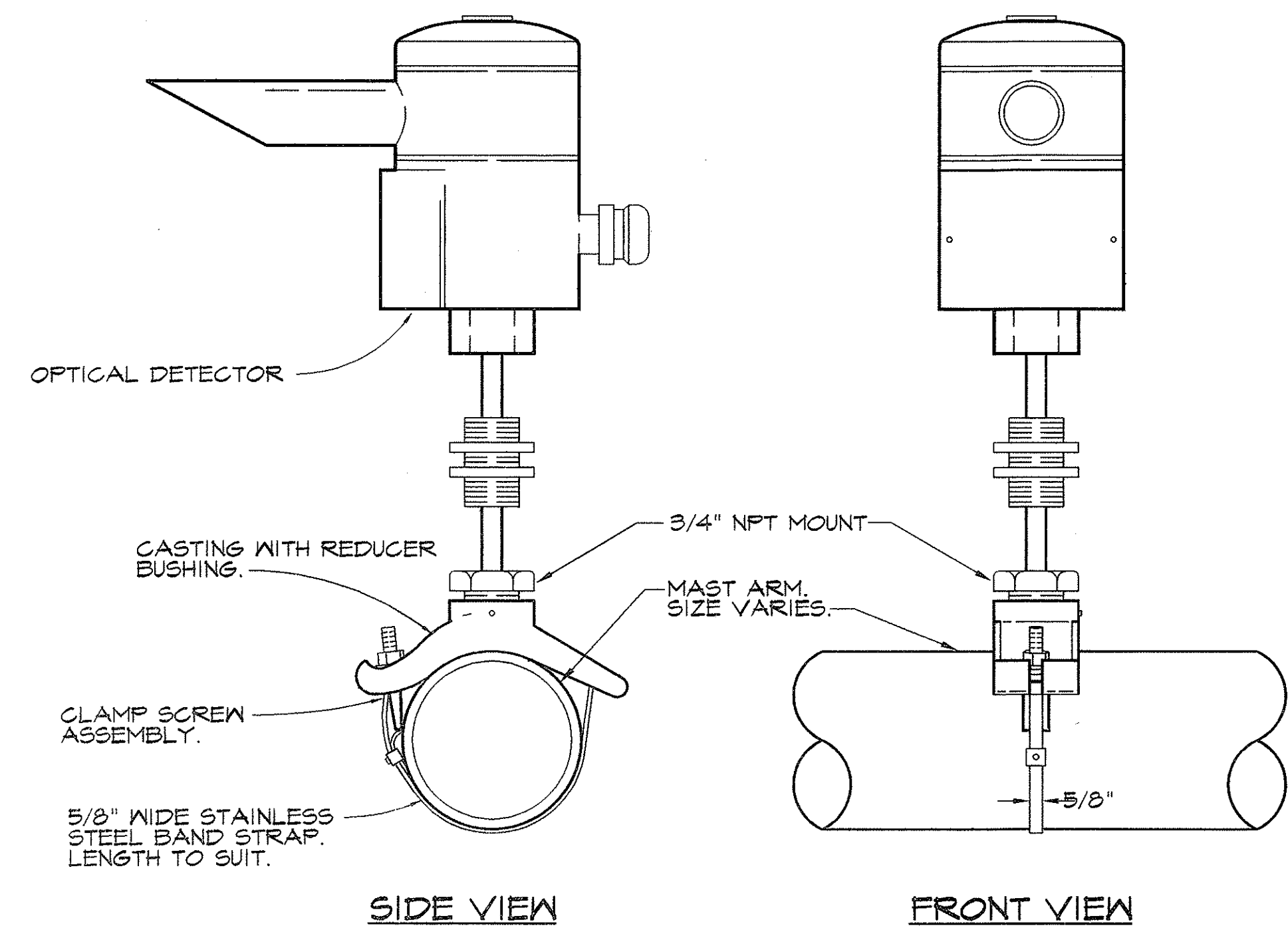
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- NOTES:
1. CONCRETE SHALL BE CLASS "B".
 2. DIMENSIONS SHALL BE ALTERED TO SUIT CONTROLLER CABINET ACTUALLY FURNISHED.
 3. CONDUIT BENDS AND DRAIN ARE INCIDENTAL TO CONCRETE BASE.
 4. REFER TO CABINET MANUFACTURER'S SPECIFICATIONS FOR DETAILS OF ANCHOR BOLTS AND BASE SETTING.
 5. ALL EXPOSED SURFACES OF CONCRETE BASE SHALL BE GIVEN A CLASS 2, RUBBED FINISH.



TYPE "D" CONC. BASE FOR CONTROLLER CABINETS



- NOTES:
1. OPTICAL DETECTOR SHALL BE "OPTICOM M511 OPTICAL DETECTOR", OR APPROVED EQUAL, UNLESS NOTED OTHERWISE IN THE SPECIAL PROVISIONS.
 2. SUPPORT SADDLE ASSEMBLY SHALL BE "ASTRO MINI-BRAC, AB-0132-29", OR APPROVED EQUAL, UNLESS NOTED OTHERWISE IN THE SPECIAL PROVISIONS.

OPTICAL DETECTOR FOR MAST ARM MOUNTING

NOTE: SIGN DETAILS SHALL BE IDENTICAL FOR PUSH-BUTTONS MOUNTED ON TRAFFIC SIGNAL STANDARDS.



PEDESTRIAN PUSHBUTTON SIGNS

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Paul T. Tangich

SIGNATURE

PAUL T. TANGICH
REGISTERED PROFESSIONAL ENGINEER
NO. 884-C
HAWAII, U.S.A.

REVISION	DATE	DESCRIPTION	BY	APPR'D.

GRAY, HONG, BILLS & ASSOCIATES, INC.
CONSULTING ENGINEERS
119 MERCHANT ST. SUITE 607

SALT LAKE BOULEVARD IMPROVEMENTS AT STADIUM MARKETPLACE
UNDER THE PROVISIONS OF ORDINANCE NO. 2412, AS AMENDED
T.M.K.: 9 - 9 - 02
HALAWA, EWA, OAHU, HAWAII

TRAFFIC SIGNAL SYSTEM MISCELLANEOUS DETAILS

ENGINEER PTT DRAWN BY KTN CHECKED BY PTT

APPROVED BY: *K. H. H. H.* 11/16/92

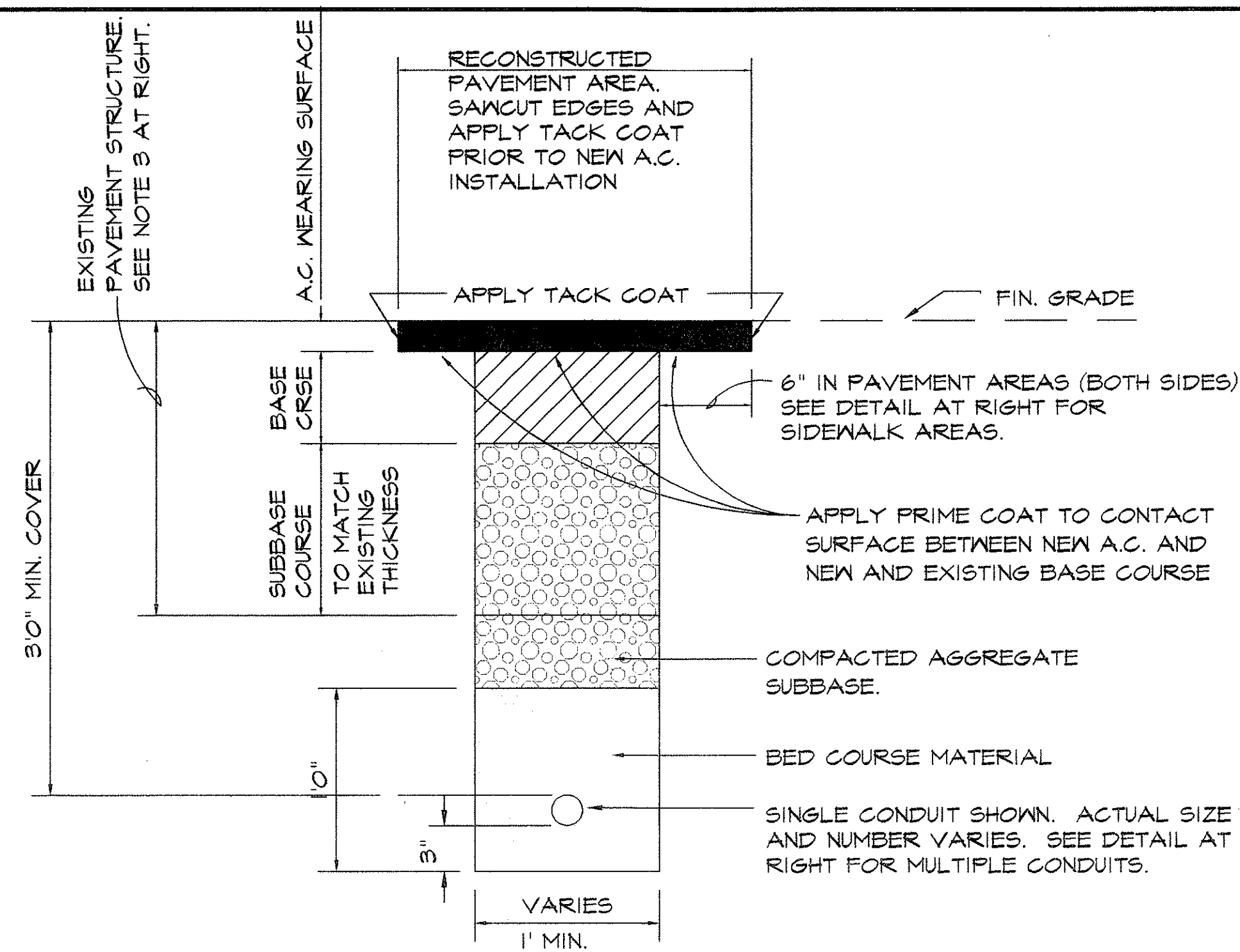
CHIEF, ELECTRICAL & MAINTENANCE SERVICES DIVISION
DEPT. OF TRANSPORTATION SERVICES

RECORD DRAWINGS

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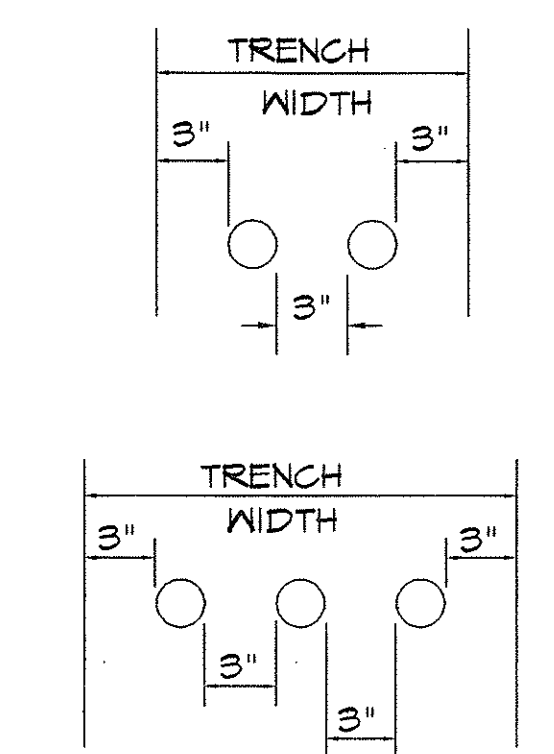
SHEET 15 OF 20 SHEETS

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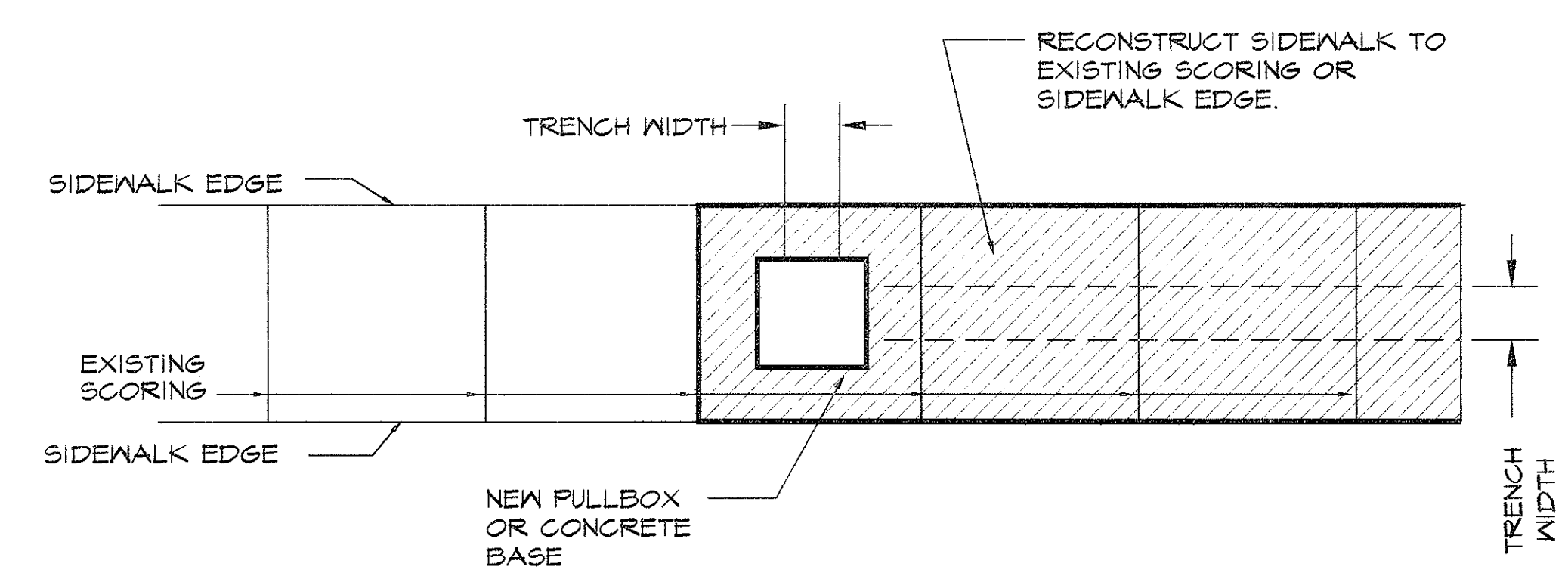


IN PAVEMENT AREAS
TYPICAL TRENCH DETAILS
NO SCALE

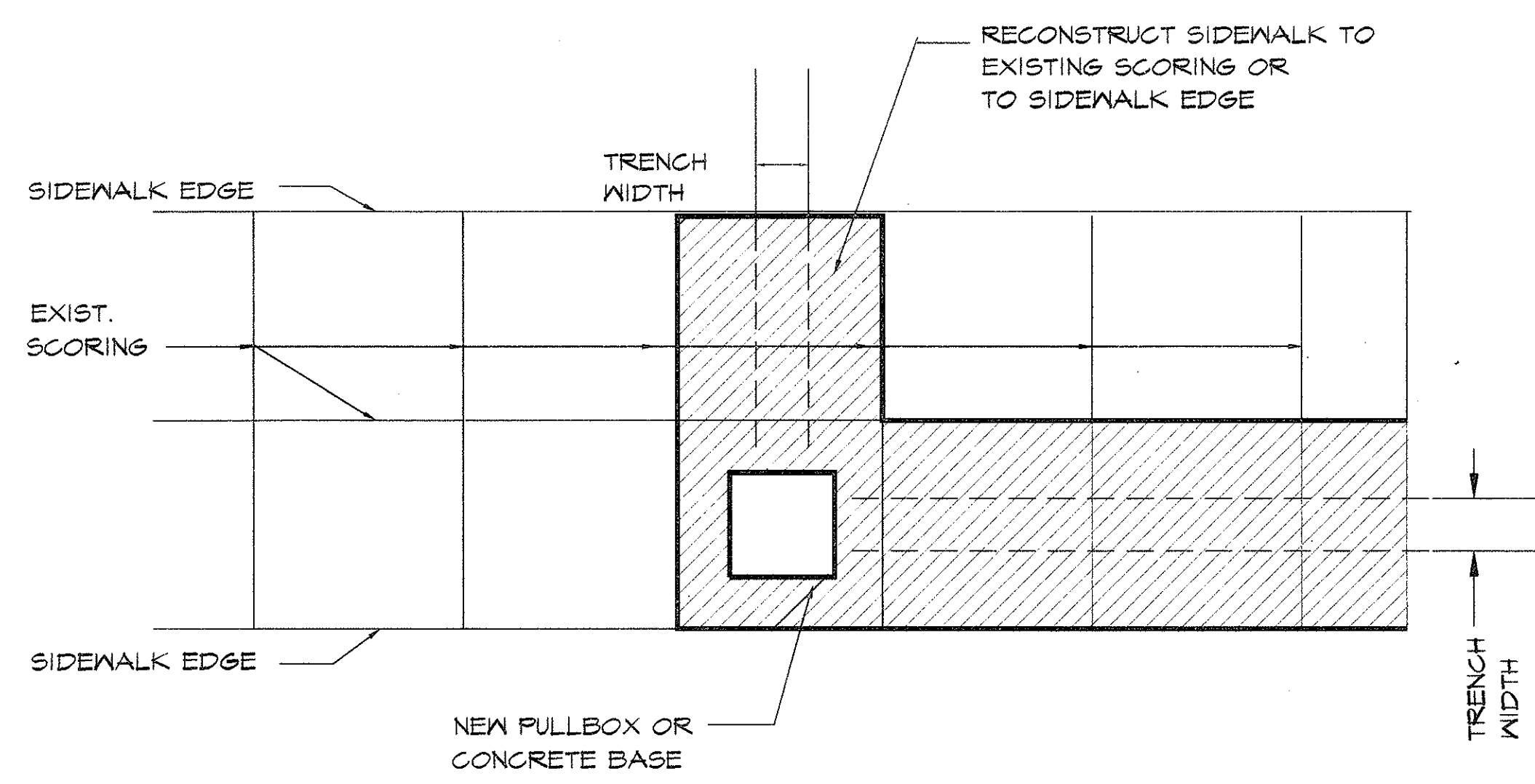
- NOTES ON TYPICAL TRENCH DETAILS
1. DETAIL FOR MULTIPLE CONDUIT TRENCHES SHALL BE SIMILAR TO THAT FOR SINGLE CONDUITS. SEE DETAIL AT RIGHT.
 2. BED COURSE MATERIAL SHALL BE BLACK SAND, BEACH SAND, CRUSHED ROCK OR FINELY GRADED CORAL PASSING A 1 INCH SIEVE.
 3. WEARING SURFACE AND BASE COURSE USED FOR REPAVING OVER TRENCHES SHALL BE EQUAL TO OR BETTER THAN THE EXISTING PAVEMENT STRUCTURE IN THICKNESS AND QUALITY, BUT NOT LESS THAN THE FOLLOWING:
2-1/2\" A.C., MIX NO. IV.
6\" AGGREGATE BASE COURSE.



TRENCH WIDTH FOR
MULTIPLE CONDUITS
NO SCALE

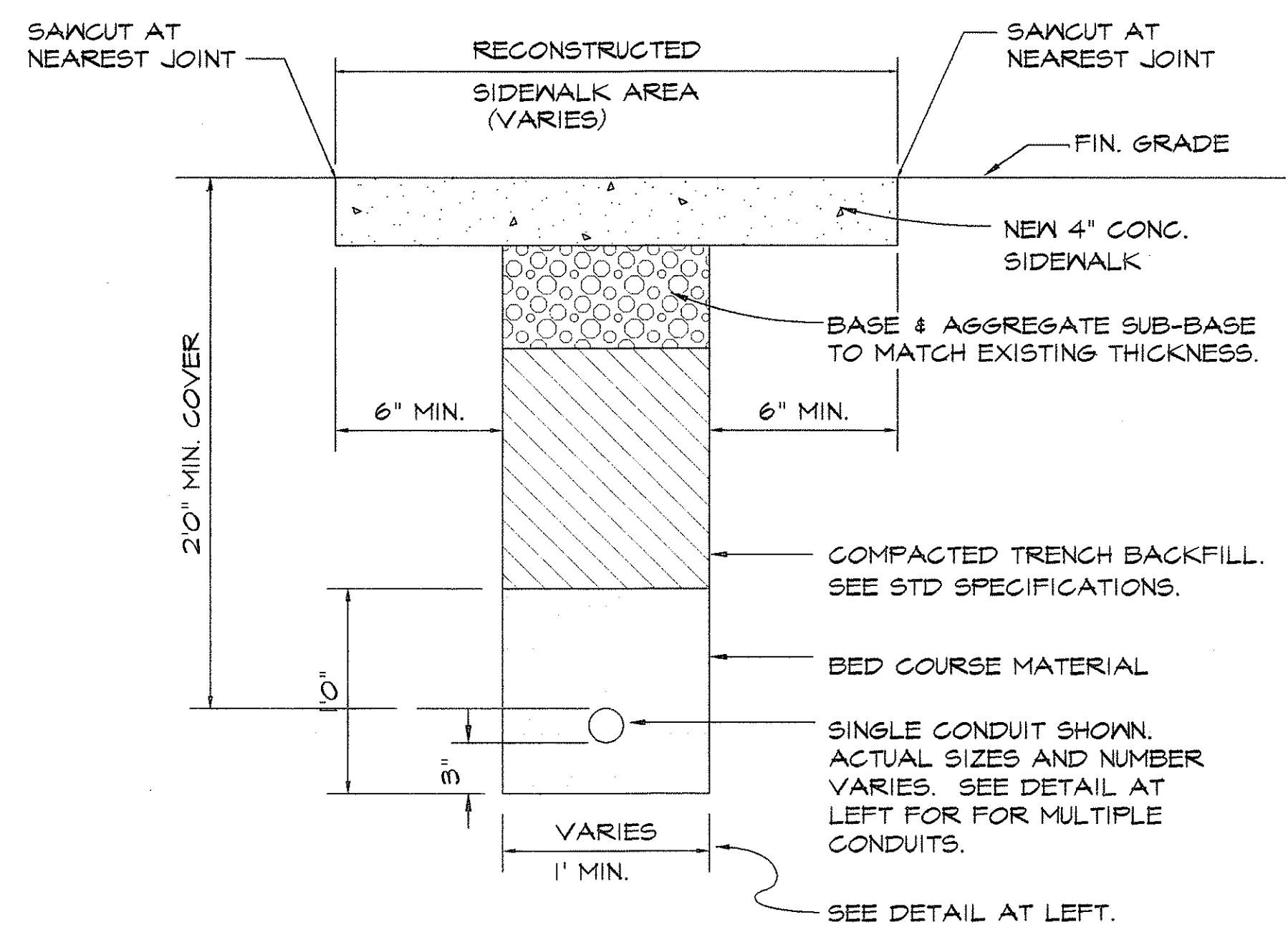


AT SINGLE BLOCK-WIDTH SIDEWALKS



AT MULTIPLE BLOCK-WIDTH SIDEWALKS

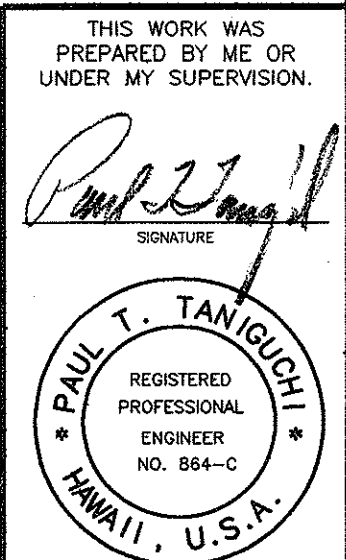
SIDEWALK RECONSTRUCTION DETAILS



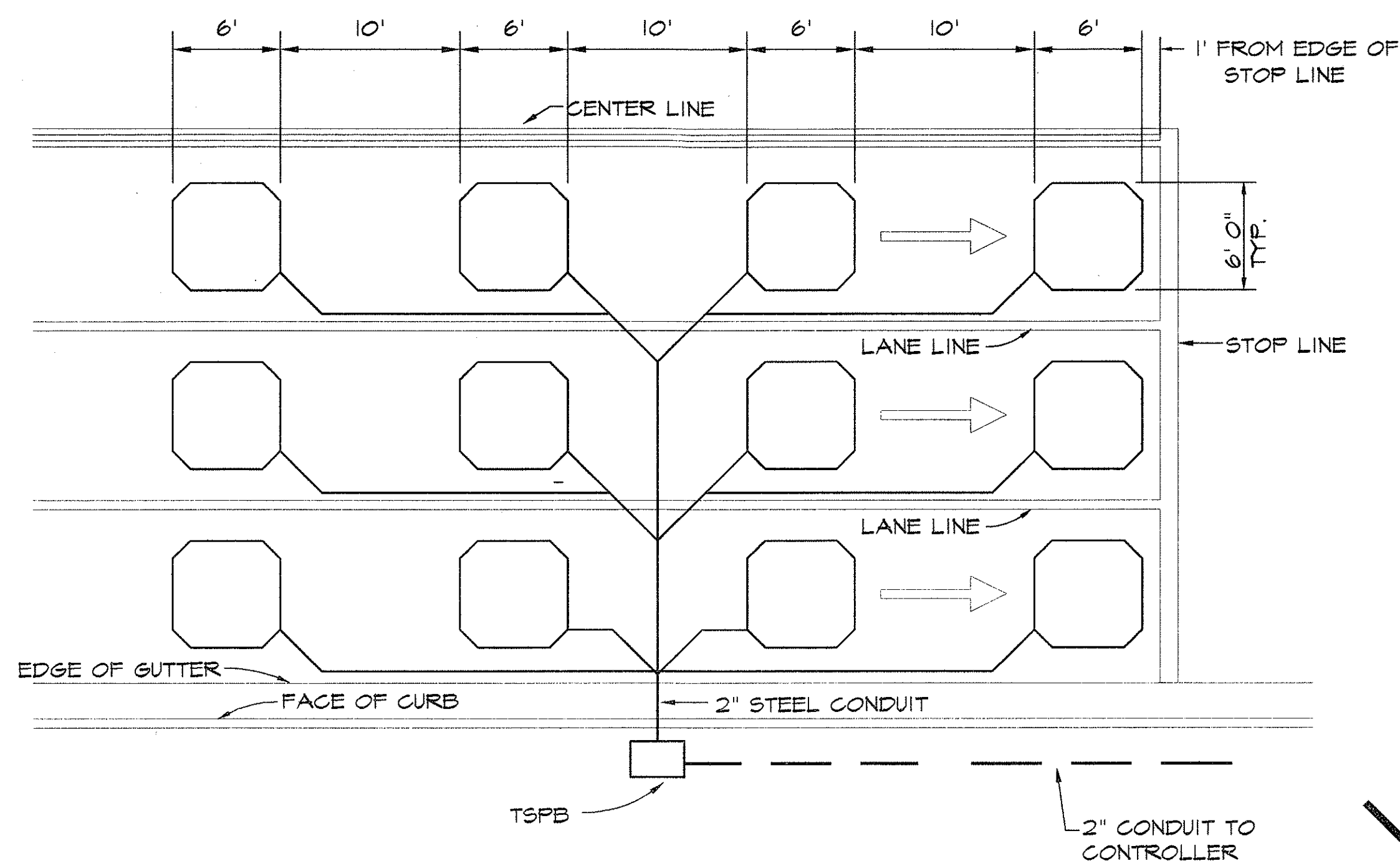
IN SIDEWALK AREAS
TYPICAL TRENCH DETAILS
NO SCALE

APPROVED BY:
[Signature] 10/21/93
CHIEF, DIV. OF ENGINEERING
DEPT. OF PUBLIC WORKS
(FOR CONSTRUCTION WITHIN CITY R-O-W ONLY)

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OF 7

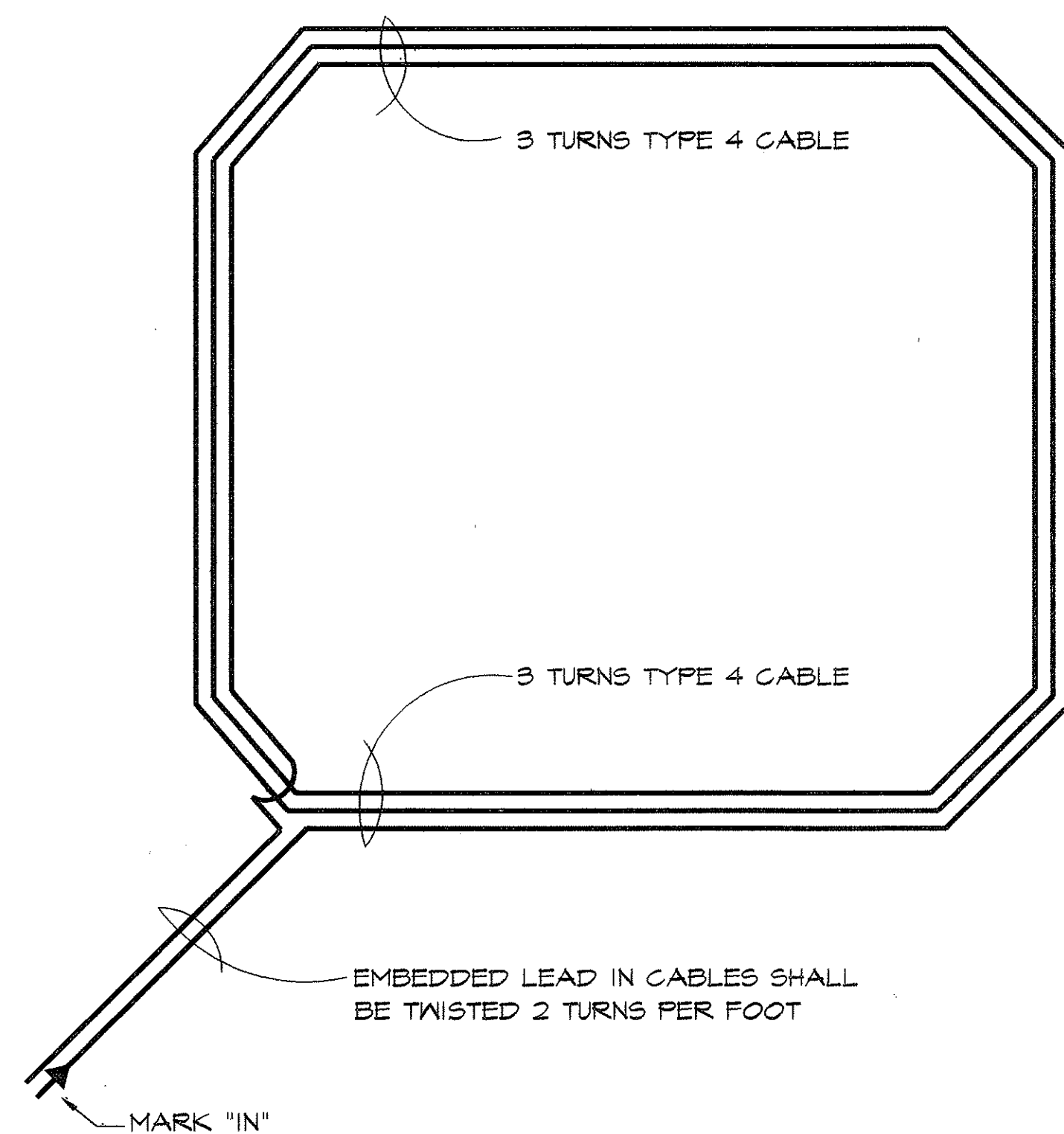


REVISION	DATE	DESCRIPTION	BY	APPR'D.
GRAY, HONG, BILLS & ASSOCIATES, INC. CONSULTING ENGINEERS 119 MERCANT ST. SUITE 607 SALT LAKE BOULEVARD IMPROVEMENTS AT STADIUM MARKETPLACE UNDER THE PROVISIONS OF ORDINANCE NO. 2412, AS AMENDED T.M.K.: 9 - 9 - 02 HALAWA, EWA, OAHU, HAWAII TRAFFIC SIGNAL SYSTEM TRENCH DETAILS ENGINEER <u>PTT</u> DRAWN BY <u>KTN</u> CHECKED BY <u>PTT</u> APPROVED BY: <i>[Signature]</i> 11/16/93 CHIEF, ELECTRICAL & MAINTENANCE SERVICES DIVISION DEPT. OF TRANSPORTATION SERVICES				



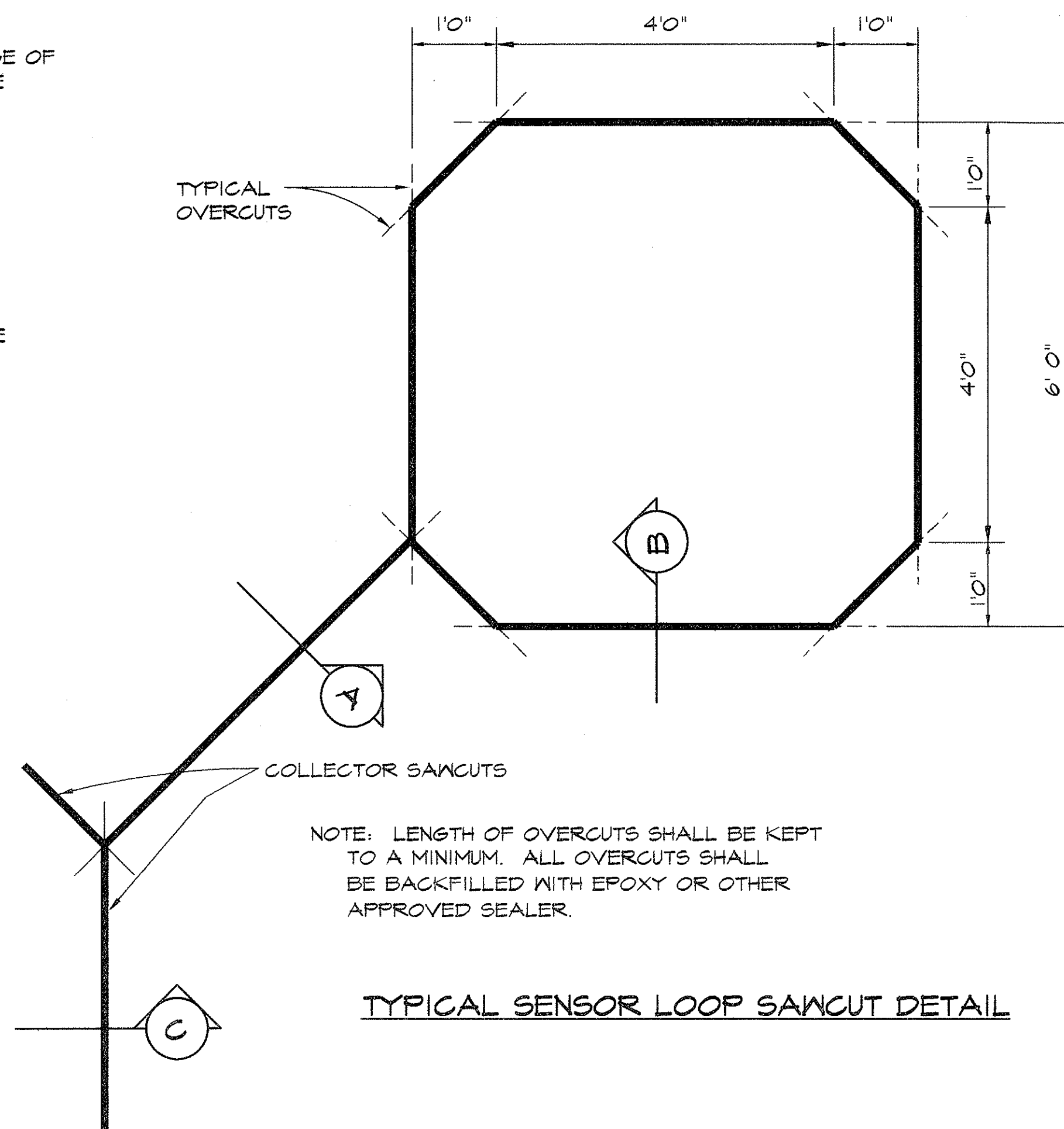
- NOTES:
1. CENTER SENSOR LOOPS IN LANES.
 2. COLLECTOR CABLES SHALL BE TWISTED 2 TURNS PER FOOT.
 3. NUMBER OF LOOPS AND LOCATIONS VARY. SEE PROJECT PLANS.
 4. NUMBER AND LOCATIONS OF COLLECTOR SAWCUTS MAY BE VARIED IN THE FIELD TO SUIT.

TYPICAL SENSOR LOOP LAYOUT

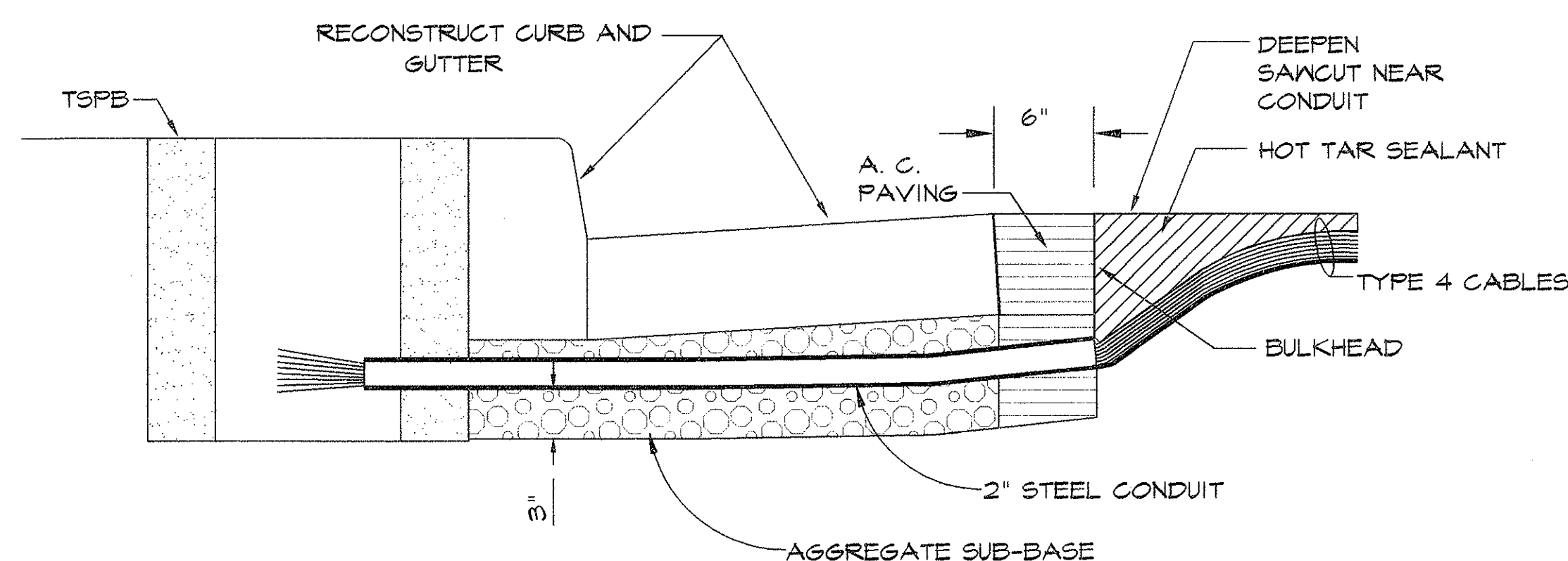


PLAN

TYPICAL SENSOR LOOP WIRING DIAGRAM



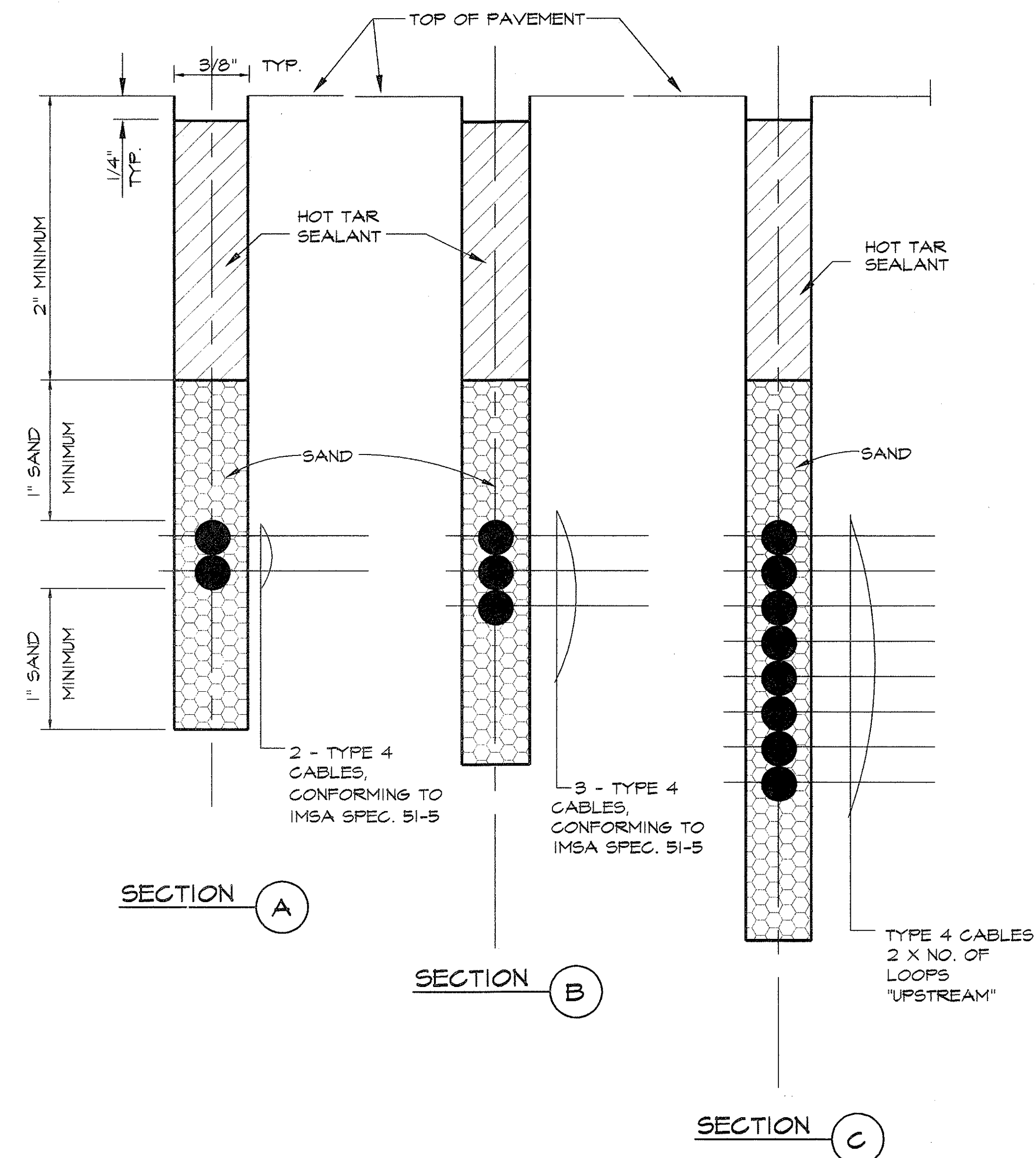
TYPICAL SENSOR LOOP SAWCUT DETAIL



NOTES ON CONSTRUCTION AT END OF SAWCUT

1. SEAL ROADWAY END OF CONDUIT AFTER INSTALLATION OF CONDUCTORS.
2. INSTALL BULKHEAD ACROSS CONDUIT TRENCH.
3. PLACE SEALANT IN SAWCUT.
4. BACKFILL OVER CONDUIT WITH NEW A.C.
5. RECONSTRUCT CURB AND GUTTER AS REQUIRED.

DETAIL OF SENSOR LOOP INSTALLATION
AT EDGE OF ROADWAY

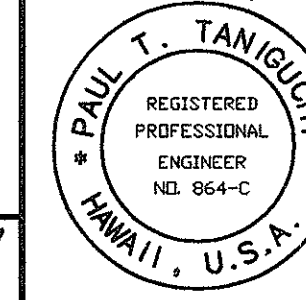


SECTION A

SECTION B

SECTION C

TS-7
OF 7



THIS WORK WAS
PREPARED BY ME OR
UNDER MY SUPERVISION.
Paul T. Taniguchi
SIGNATURE

REVISION	DATE	DESCRIPTION	BY	APPR'D.
GRAY, HONG, BILLS & ASSOCIATES, INC. CONSULTING ENGINEERS 119 MERCHANT ST. SUITE 607				
SALT LAKE BOULEVARD IMPROVEMENTS AT STADIUM MARKETPLACE UNDER THE PROVISIONS OF ORDINANCE NO. 2412, AS AMENDED T.M.K.: 9 - 9 - 02 HALAWA, EWA, OAHU, HAWAII				
TRAFFIC SIGNAL SYSTEM SENSOR LOOP DETAILS				
ENGINEER	PTT	DRAWN BY	KTN	CHECKED BY
APPROVED BY:		DATE		
<i>Paul T. Taniguchi</i> PAUL T. TANIGUCHI REGISTERED PROFESSIONAL ENGINEER NO. 864-C HAWAII, U.S.A.		<i>11/16/93</i> DATE		