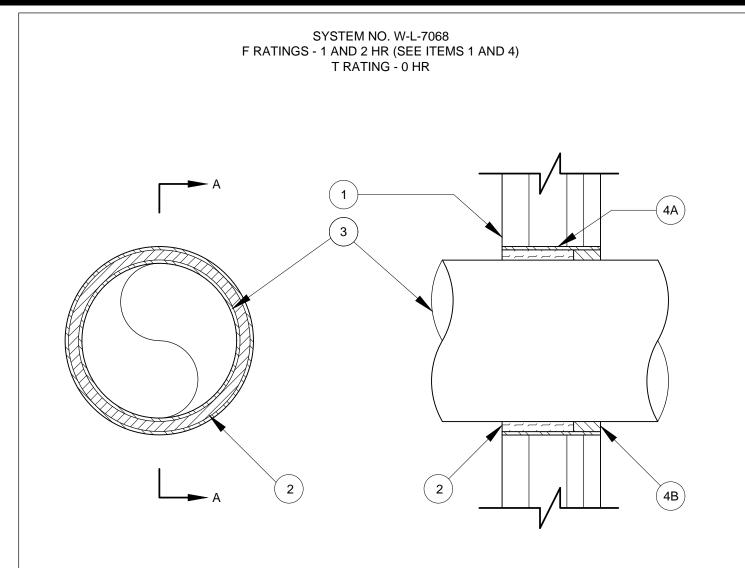


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	AR94630 AR9
	AA 26003917 Design - Architecture - Consultants TO THE BEST OF MY KNOWLEDGE THESE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES AND FIRE-SAFETY STANDARDS AS DETERMINED BY AUTHORITY HAVING JURISDICTION (AHJ) AND IN ACCORDANCE WITH 2017 FBC SECTION 110.8.4.4 AND CHAPTER 633 OF THE FLORIDA STATUTES.
	engineering inc
	STRUCTURE:
	LANDSCAPE ARCHITECT: HL. Martin, Landscape Architect, P.A. LC* 26000404 LA *0001722 5965 SW 38th Street, Miami, Florida 33155 305 790-4372, himartinufiu@bellsouthnet
	PROJECT NAME: ONE OASIS
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(TAC) REVIEW SUBMITTAL - SEPTEMBER 07, 2020	SHEET No. A6.01







. WALL ASSEMBLY — THE 1 OR 2 HR FIRE-RATED GYPSUM BOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U400 OR V400 SERIES WALL AND PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

A. STUDS --- "C-T" SHAPED STUDS -1-5/8 IN. WIDE BY 2-1/2 IN. DEEP, FABRICATED FROM 25 MSG GALV STEEL, SPACED MAX 24 IN. OC.

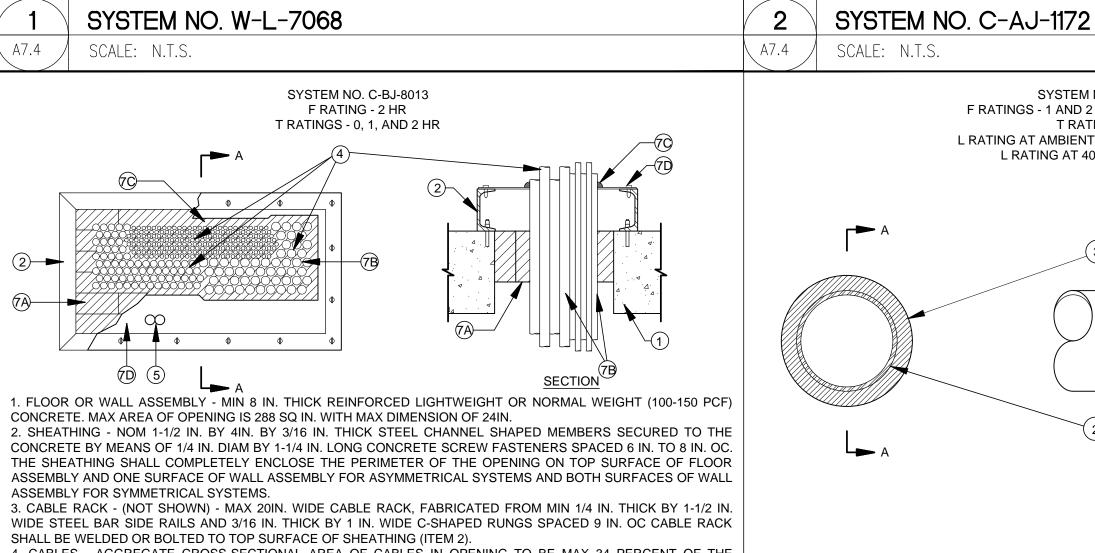
B. GYPSUM BOARD* — ONE LAYER OF NOM 1IN. THICK, 24 IN. WIDE GYPSUM LINER AND ONE OR TWO LAYERS OF NOM 5/8 IN. THICK, 4 FT. WIDE GYPSUM BOARD WITH SQUARE OR TAPERED EDGES. THE GYPSUM BOARD TYPE, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAX DIAM OF OPENING IS 7 IN.

2. METALLIC SLEEVE — MAX 7 IN. DIAM CYLINDRICAL SLEEVE FABRICATED FROM MIN 0.016 IN. THICK (28 GAUGE) GALV SHEET STEEL AND HAVING A MIN 1 IN. LAP ALONG THE LONGITUDINAL SEAM. LENGTH OF STEEL SLEEVE TO BE EQUAL TO THICKNESS OF WALL. SLEEVE INSTALLED BY COILING THE SHEET STEEL TO A DIAM SMALLER THAN THE THROUGH OPENING, INSERTING THE COIL THROUGH THE OPENING AND RELEASING THE COIL TO LET IT UNCOIL AGAINST THE CIRCULAR CUTOUTS IN THE GYPSUM BOARD LAYERS. SLEEVE MAY ALSO BE FORMED OF NO. 8 STEEL WIRE MESH HAVING A MIN 1 IN. LAP ALONG THE LONGITUDINAL

3. STEEL DUCT — NOM 6 IN. DIAM (OR SMALLER) NO. 28 GAUGE (OR HEAVIER) GALV STEEL DUCT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE SHALL BE MIN 1/4 IN. TO MAX 3/4 IN. DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE WALL ASSEMBLY. 4. FIRESTOP SYSTEM — THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:

A. PACKING MATERIAL — MIN 2-1/8 OR 2-3/4 IN. THICKNESS OF MIN 4 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO SLEEVE ON ONE SIDE OF THE WALL AS A PERMANENT FORM FOR 1 AND 2 HR WALLS, RESPECTIVELY. PACKING MATERIAL TO BE RECESSED FROM THE ROOM SIDE OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL. B. FILL, VOID OR CAVITY MATERIAL — SEALANT* — MIN 1 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN

OPENING, FLUSH WITH ONE SURFACE OF WALL 5. NOTE: AN APPROVED EQUAL SHALL BE ALLOWED PER COMPLIANCE WITH SECTIONS 712 AND 713 OF THE FBC 2017 EDITION.



4. CABLES - AGGREGATE CROSS-SECTIONAL AREA OF CABLES IN OPENING TO BE MAX 34 PERCENT OF THE CROSS-SECTIONAL AREA OF THE OPENING. THE ANNULAR SPACE BETWEEN CABLES AND THE PERIPHERY OF THE OPENING SHALL BE MN 1 IN. MIN. CABLES TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.

5. CONDUIT - (OPTIONAL) - MAX TWO NOM 1/2 IN. (13 MM) DIAM ELECTRICAL METALLIC CONDUIT TUBING (EMT). THE ANNULAR SPACE BETWEEN CABLES AND THE CONDUIT AND THE CONDUIT AND THE PERIPHERY OF THE OPENING SHALL BE 1-3/4 IN. AND 3/4 IN. RESPECTIVELY.

6. ELECTRIC NONMETALLIC TUBING+ - (OPTIONAL) (NOT SHOWN)- MAX TWO NOM 2 IN. DIAM (OR SMALLER) CORRUGATED WALL ELECTRICAL NONMETALLIC TUBING (ENT), SPACED MIN 0 IN. (POINT CONTACT) APART, CONSTRUCTED OF POLYVINYL CHLORIDE (PVC). THE ANNULAR SPACE BETWEEN CABLES AND THE ENT AND THE ENT AND THE PERIPHERY OF THE OPENING SHALL BE 2 IN. AND 5/8 IN. RESPECTIVELY.

7. FIRESTOP SYSTEM - THE FIRESTOP SYSTEM SHALL BE INSTALLED AS AN ASYMMETRICAL SYSTEM IN A FLOOR AND A SYMMETRICAL OR ASYMMETRICAL SYSTEM IN A WALL ASSEMBLY. THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING ITEMS:

A. FILL, VOID OR CAVITY MATERIALS* - FIRE BLOCKS - FIRE BLOCKS INSTALLED WITH 5 IN. DIMENSION PROJECTING THROUGH OPENING, FLUSH WITH THE TOP SURFACE OF FLOOR OR EITHER WALL SURFACE. BLOCKS TO BE FIRMLY PACKED AND COMPLETELY FILL THE ENTIRE LENGTH AND WIDTH OF THE OPENING B. FILL, VOID OR CAVITY MATERIALS* - PUTTY - FORMED INTO PADS 6 IN. BY 7 IN. BY 1/8 IN. INSTALLED FLUSH

WITH BOTTOM OF BLOCKS, BETWEEN EACH ROW OF CABLES AND AROUND PERIPHERY OF CABLE BUNDLE TO FILL ALL VOIDS. C. FILL, VOID OR CAVITY MATERIALS* - PUTTY - WHEN COVER PLATE IS USED, MIN 1/2 IN. THICKNESS OF FILL

MATERIAL TO BE APPLIED AT CABLES/COVER PLATE INTERFACE. ADDITIONAL 3/8 IN. BEAD OF FILL MATERIAL APPLIED AT FILL/COVER PLATE INTERFACE, OVERLAPPING COVER PATE. C1. FILL, VOID OR CAVITY MATERIALS* - SEALANT (OPTIONAL, NOT SHOWN) - WHEN COVER PATE IS USED, MIN

1/2 IN. THICKNESS OF FILL MATERIAL TO BE APPLIED AT CABLES/COVER PLATE INTERFACE. ADDITIONAL 3/8 IN. BEAD OF FILL MATERIAL APPLIED AT FILL/COVER PLATE INTERFACE, OVER LAPPING COVER PLATE D. STEEL COVER PLATE (OPTIONAL) - MIN 0.020 IN. THICK (NO. 22MSG) STEEL PLATE SHALL BE CUT TO FIT THE

CONTOUR OF THE CABLE BUNDLE. STEEL COVER PLATE SECURED TO THE SHEATHING WITH 1/4-20 BOLTS SPACED MAX 12 IN. OC. ANNULAR SPACE BETWEEN CABLES AND COVER PLATE SHALL BE MIN 0 IN. (POINT CONTACT) TO MAX 1 IN. ANNULAR SPACE BETWEEN CABLES AND SHEATHING SHALL BE MIN 0 IN. (POINT CONTACT) TO MAX 1 IN. IN ORDER TO ACHIEVE T, FT AND FTH RATINGS GREATER THAN 0 HR, THE ANNULAR SPACES SHALL BE TREATED AS DESCRIBED IN ITEMS 5B AND 5B 1. WHEN THE COVER PLATE IS NOT USED OR ANNULAR SPACES ARE NOT TREATED, THE T, FT AND FTH RATINGS ARE 0 HR.

8. NOTE: AN APPROVED EQUAL SHALL BE ALLOWED PER COMPLIANCE WITH SECTIONS 712 AND 713 OF THE FBC 2017 EDITION

CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF D. COPPER TUBING — NOM 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING. OPENING IS 8 IN. SEE CONCRETE BLOCKS. E. CONDUIT - NOM 6 IN. DIAM (OR SMALLER) STEEL CONDUIT. 2. METALLIC PIPES - NOM 1 IN. DIAM (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE. A MAX OF FIVE PIPES F. CONDUIT - NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING (EMT). TO BE INSTALLED WITHIN THE OPENING. THE SPACE BETWEEN PIPES SHALL BE MIN 1/2 IN. THE SPACE BETWEEN . FIRESTOP SYSTEM — THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING: PIPES AND PERIPHERY OF OPENING SHALL BE MIN 1/2 IN. TO MAX 3-1/2 IN. PIPES TO BE RIGIDLY SUPPORTED ON A. PACKING MATERIAL — MIN 4 IN. THICKNESS OF MIN 4 PCF MINERAL WOOL BATT INSULATION BOTH SIDES OF FLOOR OR WALL ASSEMBLY. FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED 3. FIRESTOP SYSTEM - THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:

(4B)

FROM TOP SURFACE OF FLOOR OR SLEEVE OR FROM BOTH SURFACES OF WALL OR SLEEVE AS REQUIRED TO A. PACKING MATERIAL - MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL. FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL B. FILL, VOID OR CAVITY MATERIAL* — SEALANT — MIN 1/4 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL. AS ON OPTION TO THE ABOVE, THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR SLEEVE OR WITH BOTH SURFACES OF WALL OR SLEEVE. AT THE POINT OR CONTINUOUS CONTACT LOCATIONS BETWEEN PENETRANT AND CONCRETE OR SLEEVE, A MIN B. FILL, VOID OR CAVITY MATERIALS* - SEALANT - MIN 1-1/4 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN 1/4 IN. DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE CONCRETE OR SLEEVE/ PIPE PENETRANT

BACKER ROD AND/OR FOAMED PLASTIC BACKER MATERIAL MAY BE USED. THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL INTERFACE ON THE TOP SURFACE OF FLOOR AND ON BOTH SURFACES OF WALL 4. NOTE: AN APPROVED EQUAL SHALL BE ALLOWED PER COMPLIANCE WITH SECTIONS 712 AND 713 OF THE FBC 5. NOTE: AN APPROVED EQUAL SHALL BE ALLOWED PER COMPLIANCE WITH SECTIONS 712 AND 713 OF THE FBC 2017 EDITION. 2017 EDITION.

F RATINGS - 1 AND 2 HR (SEE ITEMS 1 AND 3) T RATING - 0 HR L RATING AT AMBIENT LESS THAN 1 CFM/ SQ F1 L RATING AT 400 F - 4 CFM / SQ FT <u>SECTION</u>

SYSTEM NO. W-L-1054

WALL ASSEMBLY -- THE 1 OR 2 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

CAVITY, THE OPENING SHALL BE FRAMED ON ALL SIDES USING LENGTHS OF STEEL STUD INSTALLED BETWEEN THE VERTICAL STUDS AND SCREW-ATTACHED TO THE STEEL STUDS AT EACH END. THE FRAMED OPENING IN THE WALL SHALL BE 4 TO 6 IN. WIDER AND 4 TO 6 IN. HIGHER THAN THE DIAM OF THE PENETRATING ITEM SUCH THAT, WHEN THE PENETRATING ITEM IS INSTALLED IN THE OPENING, A 2 TO 3 IN. CLEARANCE IS PRESENT BETWEEN THE PENETRATING ITEM AND THE FRAMING ON ALL FOUR SIDES.

B. GYPSUM BOARD* -- 5/8 IN. THICK, 4 FT WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM BOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 32-1/4 IN. FOR STEEL STUD WALLS. MAX DIAM OF OPENING IS 14-1/2 IN. FOR WOOD STUD WALLS. THE F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE FIRE RATING OF THE WALL ASSEMBLY

2. THROUGH-PENETRANTS -- ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE SHALL BE MIN 0 IN. TO MAX 2-1/4 IN. PIPE MAY BE INSTALLED WITH CONTINUOUS POINT CONTACT. PIPE, CONDUIT OR TUBING MAY BE INSTALLED AT AN ANGLE NOT GREATER THAN 45 DEGREES FROM PERPENDICULAR. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED: A. STEEL PIPE -- NOM 30 IN DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.

H. FIRE RESISTIVE CABLES* - MAX 1-1/4 IN. DIAM SINGLE CONDUCTOR OR MULTI CONDUCTOR TYPE MI CABLE. A MIN 1/8 IN. SEPARATION SHALL BE MAINTAINED BETWEEN MI CABLES AND ANY OTHER TYPES B. IRON PIPE -- NOM 30 IN. DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE. OF CABLE. THROUGH PENETRATING PRODUCT* - ANY CABLES, METAL-CLAD CABLE+ OR ARMORED CABLE+ C. CONDUIT -- NOM 4 IN DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR 6 IN. DIAM STEEL CONDUIT. CURRENTLY CLASSIFIED UNDER THE THROUGH PENETRATING PRODUCTS CATEGORY. D. COPPER TUBING -- NOM 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING. 4. FILL, VOID OR CAVITY MATERIAL*— SEALANT OR PUTTY — FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH E. COPPER PIPE -- NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE. WITH EACH END OF THE STEEL SLEEVE OR WALL SURFACE. FILL MATERIAL INSTALLED SYMMETRICALLY ON

BOTH SURFACES OF WALL

2017 EDITION.

SCALE: N.T.S

A7.4

SYSTEM NO. W-L-1054

5	\backslash	SYSTEM NO. C-BJ-8013
7.4		SCALE: N.T.S.

3. FILL, VOID OR CAVITY MATERIAL* -- SEALANT -- MIN 5/8 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE

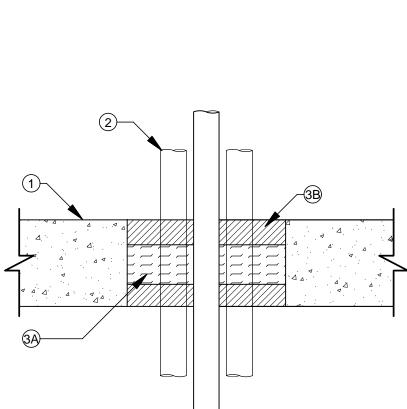
ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. AT THE POINT OR CONTINUOUS CONTACT LOCATIONS BETWEEN PIPE AND WALL, A MIN 1/2 IN. DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE PIPE WALL INTERFACE ON

4. NOTE: AN APPROVED EQUAL SHALL BE ALLOWED PER COMPLIANCE WITH SECTIONS 712 AND 713 OF THE FBC

A. STUDS -- WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC. STEEL STUDS TO BE MIN 2-1/2 IN. WIDE AND SPACED MAX 24 IN. OC. WHEN STEEL STUDS ARE USED AND THE DIAM OF OPENING EXCEEDS THE WIDTH OF STUD

I. FLOOR OR WALL ASSEMBLY - MIN 4-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF)

SECTION



SYSTEM NO. C-AJ-1172

F RATING - 2 HR

T RATING - 1-1/2 HR

. FLOOR OR WALL ASSEMBLY - MIN 4-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE

BLOCKS*. MAX DIAM OF OPENING IS 32 IN. 2. METALLIC SLEEVE — (OPTIONAL) NOM 32 IN. DIAM (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL SLEEVE CAST OR GROUTED INTO FLOOR OR WALL ASSEMBLY, FLUSH WITH FLOOR OR WALL SURFACES OR EXTENDING A

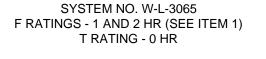
MAX OF 3 IN. ABOVE FLOOR OR BEYOND BOTH SURFACES OF WALL 3. THROUGH-PENETRANT — ONE METALLIC PIPE, TUBE OR CONDUIT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PENETRANT AND PERIPHERY OF OPENING SHALL BE MIN 0 IN. (POINT CONTACT) TO MAX 1-7/8 IN. PENETRANT MAY BE INSTALLED

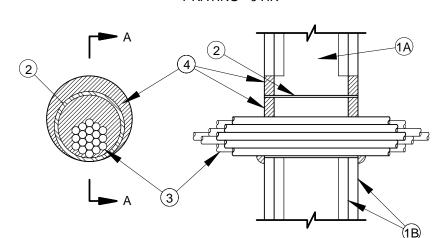
WITH CONTINUOUS POINT CONTACT, PENETRANT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PENETRANTS MAY BE USED:

A. STEEL PIPE — NOM 30 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE. B. IRON PIPE — NOM 30 IN. DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE

C. COPPER PIPE — NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.







WALL ASSEMBLY — THE 1 OR 2 FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300, U400 OR V400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

A. STUDS — WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC. STEEL STUDS TO BE MIN 2-1/2 IN. WIDE AND SPACED MAX 24 IN. OC.

B. GYPSUM BOARD* - NOM 5/8 IN. THICK GYPSUM BOARD, WITH SQUARE OR TAPERED EDGES. THE GYPSUM BOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS

SPECIFIED IN THE INDIVIDUAL U300, U400 OR V400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 5-1/2 IN. WHEN SLEEVE (ITEM 2) IS EMPLOYED. MAX DIAM OF OPENING IS 4 IN. WHEN SLEEVE (ITEM 2) IS NOT EMPLOYED, THE F RATING OF THE FIRESTOP SYSTEM IS EQUAL

TO THE FIRE RATING OF THE WALL ASSEMBLY. . METALLIC SLEEVE — (OPTIONAL) - NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING (EMT) OR SCHEDULE 5 (OR HEAVIER) STEEL PIPE OR MIN 0.016 IN. THICK GALV STEEL SLEEVE INSTALLED FLUSH WITH WALL SURFACES. THE ANNULAR SPACE BETWEEN STEEL SLEEVE AND PERIPHERY OF OPENING SHALL BE MIN 0 IN. TO MAX 1 IN. WHEN SCHEDULE 5 STEEL PIPE OR EMT IS USED, SLEEVE MAY EXTEND UP TO 18

IN. BEYOND THE WALL SURFACES. 3. CABLES — AGGREGATE CROSS-SECTIONAL AREA OF CABLE IN OPENING TO BE MAX 45 PERCENT OF THE

CROSS-SECTIONAL AREA OF THE OPENING. THE ANNULAR SPACE BETWEEN THE CABLE BUNDLE AND THE PERIPHERY OF THE OPENING TO BE MIN 0 IN. TO MAX 1 IN. CABLES TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE WALL ASSEMBLY. ANY COMBINATION OF THE FOLLOWING TYPES AND SIZES OF COPPER CONDUCTOR CABLES MAY BE USED:

A. MAX 7/C NO. 12 AWG WITH POLYVINYL CHLORIDE (PVC) INSULATION AND JACKET

B. MAX 25 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC INSULATION AND JACKET.

C. TYPE RG/U COAXIAL CABLE WITH POLYETHYLENE (PE) INSULATION AND PVC JACKET HAVING A MAX OUTSIDE DIAMETER OF 1/2 IN.

D. MULTIPLE FIBER OPTICAL COMMUNICATION CABLE JACKETED WITH PVC AND HAVING A MAX OD OF 5/8

E. THROUGH PENETRATING PRODUCTS* MAX THREE COPPER CONDUCTOR NO. 8 AWG . METAL-CLAD

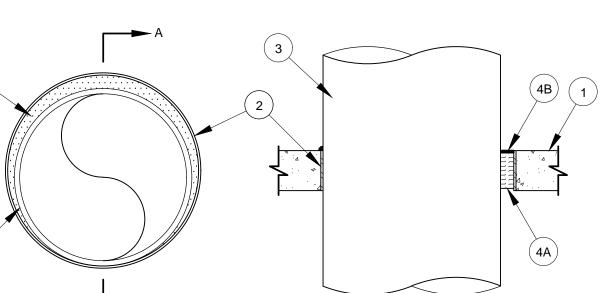
CABLE. F. MAX 3/C (WITH GROUND) (OR SMALLER) NO. 8 AWG COPPER CONDUCTOR CABLE WITH PVC INSULATION AND JACKETING.

G. MAX 3/4 IN. DIAM COPPER GROUND CABLE WITH OR WITHOUT A PVC JACKET.

BOTH SIDES OF THE WALL. A MIN 5/8 IN. THICKNESS OF SEALANT IS REQUIRED FOR THE 1 OR 2 HR F RATING . AN ADDITIONAL 1/2 IN. DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED AROUND THE PERIMETER OF SLEEVE ON

BOTH SIDES OF THE WALL WHEN SLEEVE EXTENDS BEYOND SURFACE OF WALL. 5. NOTE: AN APPROVED EQUAL SHALL BE ALLOWED PER COMPLIANCE WITH SECTIONS 712 AND 713 OF THE FBC 2017 EDITION.

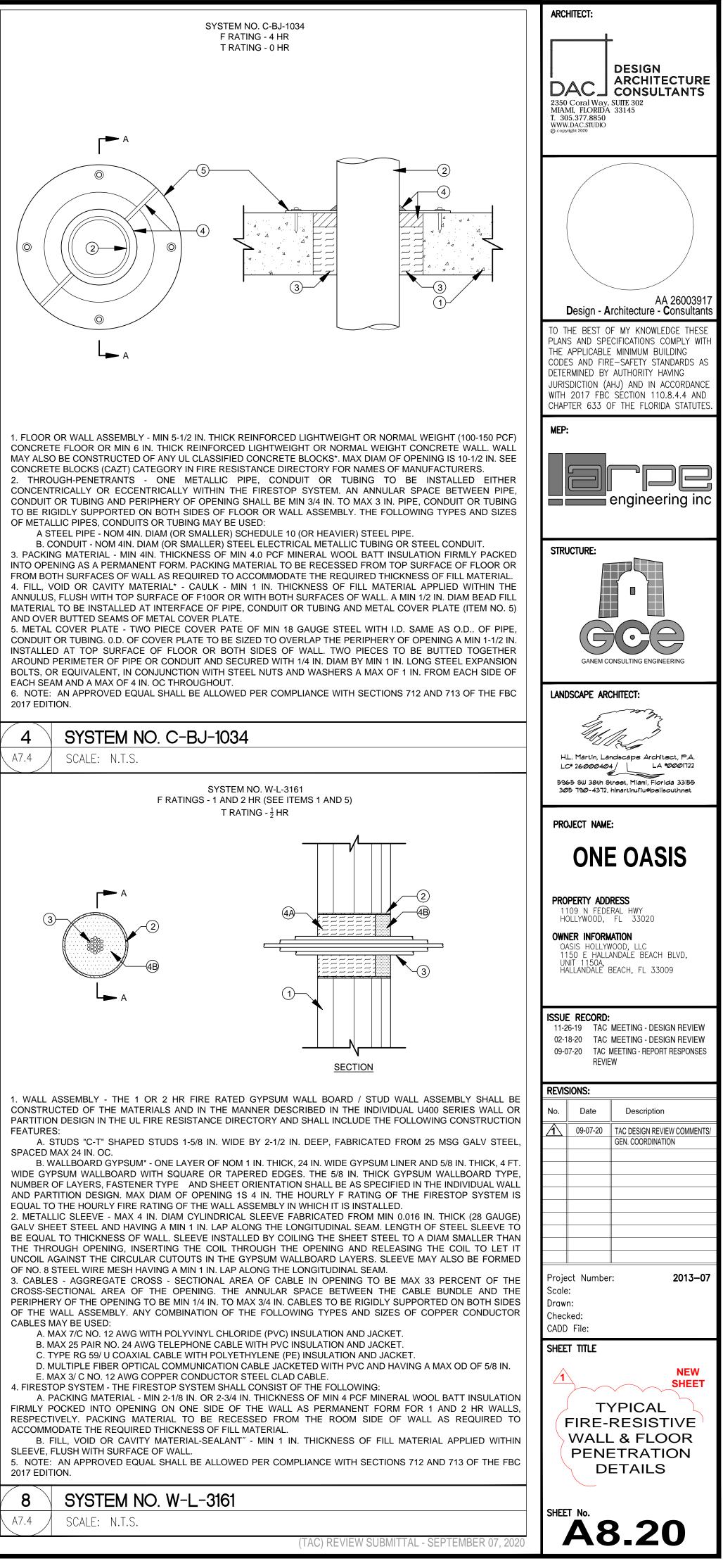
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7 SYSTEM NO. W-L-3065	
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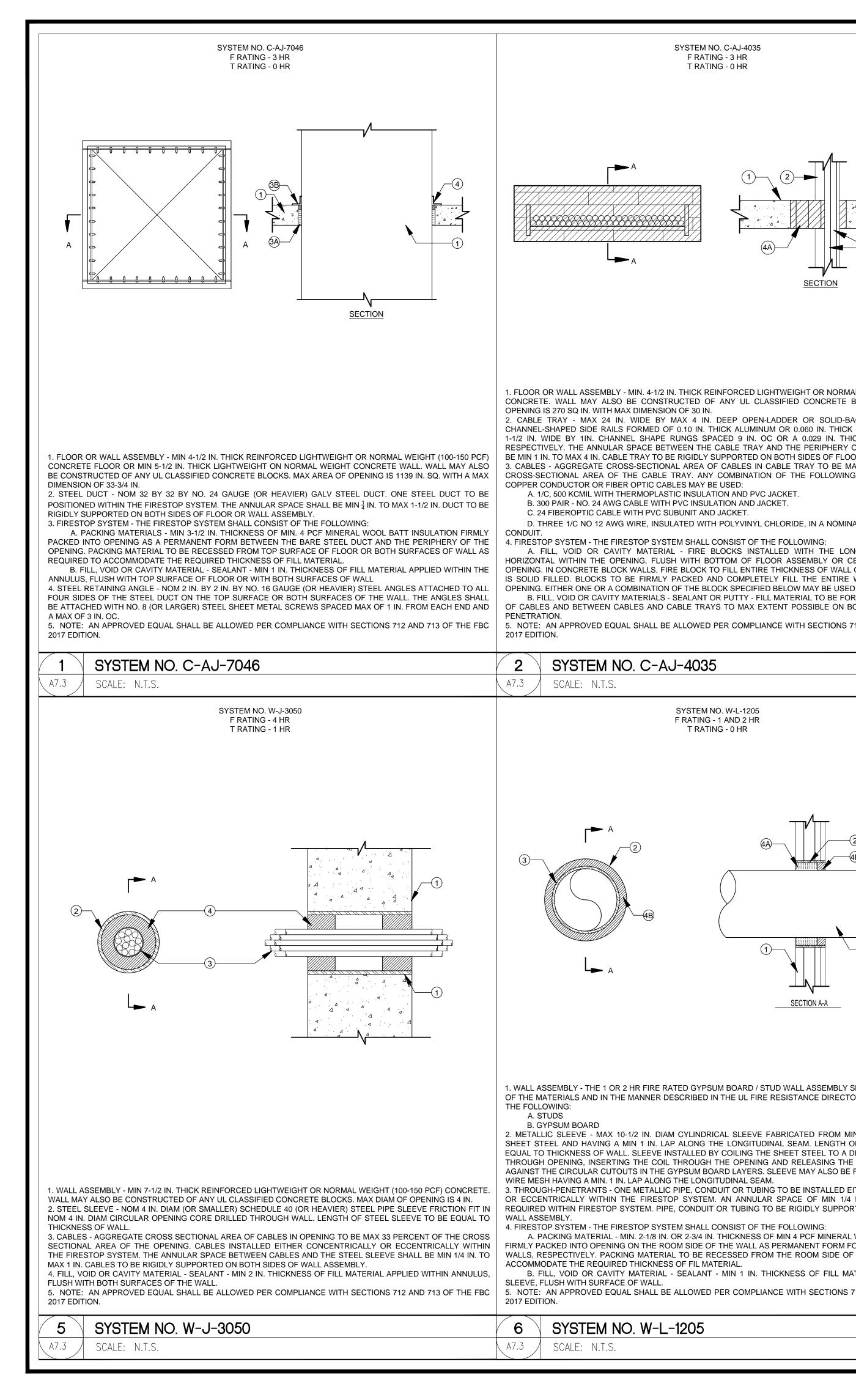


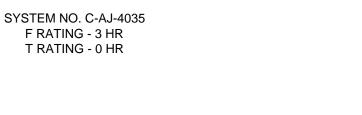
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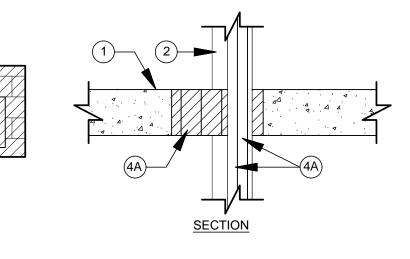
F RATINGS - 1 AND 2 HR (SEE ITEMS 1 AND 5)

T RATING $-\frac{1}{2}$ HR









(3)—

SYSTEM NO. C-AJ-3095

F RATING - 3 HR

T RATING - 0, 1/2, AND 3/4 HR

. FLOOR OR WALL ASSEMBLY - MIN. 4-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS. MAX AREA OF

2. CABLE TRAY - MAX 24 IN. WIDE BY MAX 4 IN. DEEP OPEN-LADDER OR SOLID-BACK CABLE TRAY WITH CHANNEL-SHAPED SIDE RAILS FORMED OF 0.10 IN. THICK ALUMINUM OR 0.060 IN. THICK GALV STEEL AND WITH 1-1/2 IN. WIDE BY 1IN. CHANNEL SHAPE RUNGS SPACED 9 IN. OC OR A 0.029 IN. THICK STEEL SOLID BACK, RESPECTIVELY. THE ANNULAR SPACE BETWEEN THE CABLE TRAY AND THE PERIPHERY OF THE OPENING SHALL BE MIN 1 IN. TO MAX 4 IN. CABLE TRAY TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. 3. CABLES - AGGREGATE CROSS-SECTIONAL AREA OF CABLES IN CABLE TRAY TO BE MAX 40 PERCENT OF THE CROSS-SECTIONAL AREA OF THE CABLE TRAY. ANY COMBINATION OF THE FOLLOWING TYPES AND SIZES OF

D. THREE 1/C NO 12 AWG WIRE, INSULATED WITH POLYVINYL CHLORIDE, IN A NOMINAL ³/₄ IN. FLEXIBLE METAL

A. FILL, VOID OR CAVITY MATERIAL - FIRE BLOCKS INSTALLED WITH THE LONG DIMENSION PLACED IORIZONTAL WITHIN THE OPENING, FLUSH WITH BOTTOM OF FLOOR ASSEMBLY OR CENTERED WITHIN WALL OPENING. IN CONCRETE BLOCK WALLS, FIRE BLOCK TO FILL ENTIRE THICKNESS OF WALL OPENING UNLESS WALL IS SOLID FILLED. BLOCKS TO BE FIRMLY PACKED AND COMPLETELY FILL THE ENTIRE WIDTH AND HEIGHT OF B. FILL, VOID OR CAVITY MATERIALS - SEALANT OR PUTTY - FILL MATERIAL TO BE FORCED INTO INTERSTICES

OF CABLES AND BETWEEN CABLES AND CABLE TRAYS TO MAX EXTENT POSSIBLE ON BOTH SURFACES OF THE

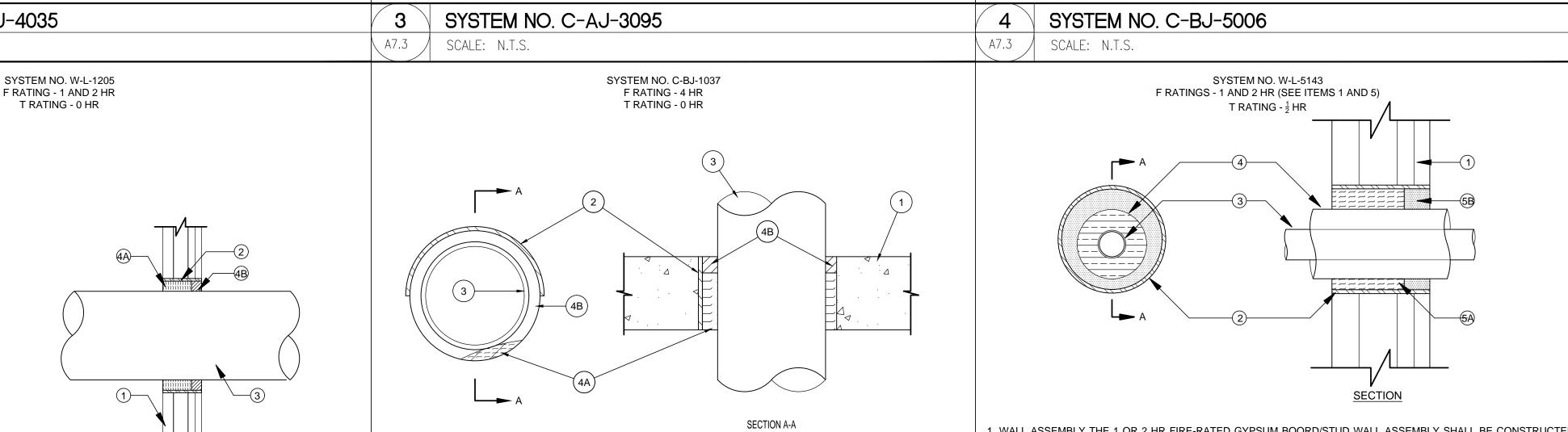
5. NOTE: AN APPROVED EQUAL SHALL BE ALLOWED PER COMPLIANCE WITH SECTIONS 712 AND 713 OF THE FBC

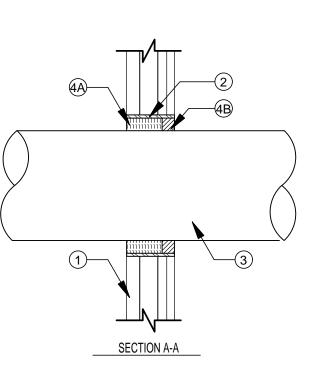
B. SHEATHING MATERIAL* ALL SERVICE JACKET MATERIAL SHALL BE WRAPPED AROUND THE OUTER 1. FLOOR OR WALL ASSEMBLY - MIN 2-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE FLOOR OR MIN. 3 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL. WALL CIRCUMFERENCE OF THE PIPE COVERING MATERIAL (ITEM 4A) WITH KRAFT FACING EXPOSED. LONGITUDINAL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS. MAX DIAM OF OPENING IS 6 IN. JOINTS SEALED WITH METAL FASTENERS 2. SLEEVE (OPTIONAL) - NOM. 6 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE CAST OR GROUTED C. PACKING MATERIAL MIN 4 IN. THICKNESS OF MIN 4.0 PCF MINERAL WOOL BATT INSULATION FIRMLY INTO FLOOR OR WALL ASSEMBLY, FLUSH WITH FLOOR OR WALL SURFACES OR EXTENDING A MAX 3 IN. ABOVE THE PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR BOTH SURFACES OF THE WALL. IF THE STEEL SLEEVE EXTENDS ABOVE THE FLOOR OR BOTH FLOOR OR FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL SURFACES OF THE WALL, THE T RATING OF THE FIRESTOP SYSTEM IS 0 HR MATERIAL

3. CABLES - AGGREGATE CROSS-SECTIONAL AREA OF CABLES IN OPENING TO BE MIN. 25 PERCENT TO MAX 45 D. FILL, VOID OR CAVITY MATERIAL* -- CAULK MIN 1 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE PERCENT OF THE AGGREGATE CROSS-SECTIONAL AREA OF THE OPENING. CABLES TO BE RIGIDLY SUPPORTED ON ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL. A MIN 1/2 IN. DIAM BEAD FILL BOTH SIDES OF FLOOR OR WALL ASSEMBLY. ANY COMBINATION OF THE FOLLOWING TYPES AND SIZES OF MATERIAL TO BE INSTALLED AT INTERFACE OF PIPE COVERING AND METAL COVER PLATE (ITEM NO. 4E) AND OVER METALLIC CONDUCTOR OR FIBER OPTIC C CABLE MAY BE USED BUTTED SEAMS OF METAL COVER PLATE.

4. PACKING MATERIAL - MIN 2 IN. THICKNESS OF MIN 4.0 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKING E. METAL COVER PLATE TWO PIECE COVER PLATE OF MIN 18 GAUGE STEEL WITH I.D. SAME AS O.D. OF PIPE. INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED 1/2 IN FROM THE TOP SURFACE OF CONDUIT OR TUBING. O.D. OF COVER PLATE TO BE SIZED TO OVERLAP THE PERIPHERY OF OPENING A MIN 1-1/2 IN. FLOOR OR FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE FILL MATERIAL. IF THE STEEL INSTALLED AT TOP SURFACE OF FLOOR OR BOTH SIDES OF WALL. TWO PIECES TO BE BUTTED TOGETHER AROUND SLEEVE EXTENDS ABOVE THE TOP OF THE FLOOR, THE PACKING MATERIAL SHALL BE FLUSH WITH THE BOTTOM PERIMETER OF PIPE OR CONDUIT, PENETRATING THE SHEATHING MATERIAL AND PIPE COVERING (ITEM NOS. 4B SURFACE OF THE FLOOR. AND 4A) TO FULLY CONTACT THE PIPE OR CONDUIT. SECURED WITH 1/4 IN. DIAM BY MIN 1 IN. LONG STEEL 5. FILL, VOID OR CAVITY MATERIAL - SEALANT - MIN 1/2 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN TH EXPANSION BOLTS, OR EQUIVALENT, IN CONJUNCTION WITH STEEL NUTS AND WASHERS A MAX OF 1 IN. FROM ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL EACH SIDE OF EACH SEAM AND A MAX OF 4 IN. OC THROUGHOUT

5. NOTE: AN APPROVED EQUAL SHALL BE ALLOWED PER COMPLIANCE WITH SECTIONS 712 AND 713 OF THE FBC 5. NOTE: AN APPROVED EQUAL SHALL BE ALLOWED PER COMPLIANCE WITH SECTIONS 712 AND 713 OF THE FBC 2017 EDITION. 2017 EDITION.





1. WALL ASSEMBLY - THE 1 OR 2 HR FIRE RATED GYPSUM BOARD / STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE

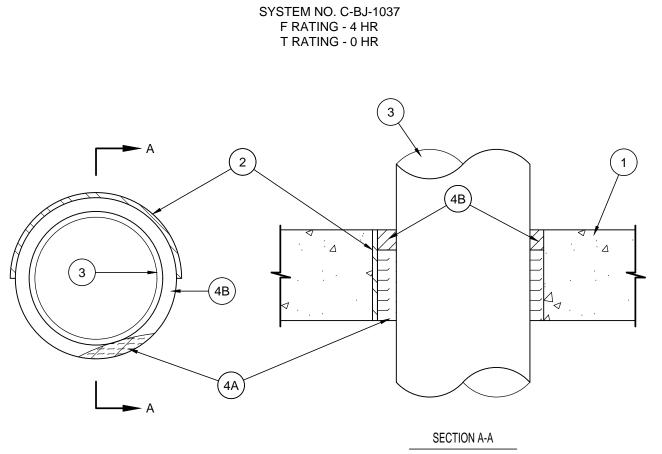
2. METALLIC SLEEVE - MAX 10-1/2 IN. DIAM CYLINDRICAL SLEEVE FABRICATED FROM MIN. 0.016 IN. THICK GALV SHEET STEEL AND HAVING A MIN 1 IN. LAP ALONG THE LONGITUDINAL SEAM. LENGTH OF STEEL SLEEVE TO BE EQUAL TO THICKNESS OF WALL. SLEEVE INSTALLED BY COILING THE SHEET STEEL TO A DIAM SMALLER THAN THE THROUGH OPENING, INSERTING THE COIL THROUGH THE OPENING AND RELEASING THE COIL TO LET IT UNCOIL AGAINST THE CIRCULAR CUTOUTS IN THE GYPSUM BOARD LAYERS. SLEEVE MAY ALSO BE FORMED OF NO. 8 STEEL

3. THROUGH-PENETRANTS - ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. AN ANNULAR SPACE OF MIN 1/4 IN. TO MAX 1-5/8 IN. IS REQUIRED WITHIN FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF

A. PACKING MATERIAL - MIN. 2-1/8 IN. OR 2-3/4 IN. THICKNESS OF MIN 4 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING ON THE ROOM SIDE OF THE WALL AS PERMANENT FORM FOR 1 AND 2 HOUR RATED WALLS, RESPECTIVELY. PACKING MATERIAL TO BE RECESSED FROM THE ROOM SIDE OF WALL AS REQUIRED TO

B. FILL, VOID OR CAVITY MATERIAL - SEALANT - MIN 1 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN

5. NOTE: AN APPROVED EQUAL SHALL BE ALLOWED PER COMPLIANCE WITH SECTIONS 712 AND 713 OF THE FBC



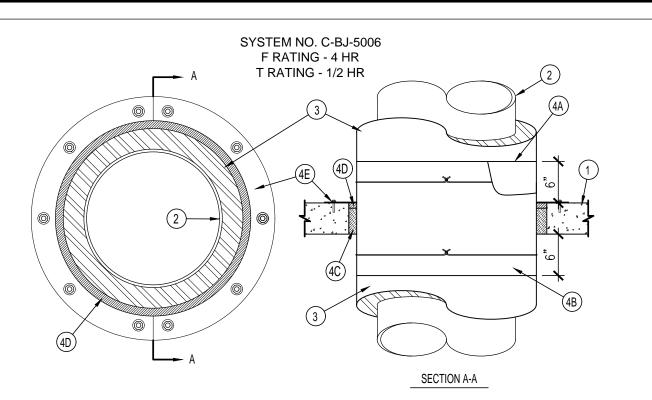
- 1. FLOOR, ROOF OR WALL ASSEMBLY* THE FIRE-RATED FLOOR- OR ROOF-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF PRECAST AUTOCLAVED AERATED CONCRETE* IN THE MANNER SPECIFIED IN DESIGN NOS. K908 OR P931, RESPECTIVELY, AND THE FIRE RATED WALL ASSEMBLY SHALL BE CONSTRUCTED OF PRECAST AUTOCLAVED AERATED CONCRETE* IN THE MANNER SPECIFIED IN DESIGN NOS. U916 OR U917 IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 8 IN.
- 2. METALLIC SLEEVE --- (OPTIONAL) -- NOM 8 IN. DIAM (OR SMALLER) SCHEDULE 10 STEEL PIPE, CAST OR GROUTED INTO FLOOR OR WALL ASSEMBLY, FLUSH WITH FLOOR OR WALL SURFACES.

3. THROUGH PENETRANTS — ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED WITHIN THE FIRESTOP 2. METALLIC SLEEVE MAX 4 IN. DIAM CYLINDRICAL SLEEVE FABRICATED FROM MIN 0.016 IN. THICK (28 GAUGE) GALV SYSTEM. THE ANNULAR SPACE BETWEEN PIPE, CONDUIT OR TUBING AND PERIPHERY OF OPENING SHALL BE SHEET STEEL AND HAVING A MIN 1 IN. LAP ALONG THE LONGITUDINAL SEAM. LENGTH OF STEEL SLEEVE TO BE 15/16 IN. WHEN SLEEVE IS USED AND MIN 0 IN. (POINT CONTACT) TO MAX 1-7/8 IN. WHEN SLEEVE IS NOT EQUAL TO THICKNESS OF WALL. SLEEVE INSTALLED BY COILING THE SHEET STEEL TO A DIAM SMALLER THAN THE USED. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL THROUGH OPENING, INSERTING THE COIL THROUGH THE OPENING ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:STEEL AND RELEASING THE COIL TO LET IT UNCOIL AGAINST THE CIRCULAR CUTOUTS IN THE GYPSUM WALLBOARD PIPE — NOM 6 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.IRON PIPE — NOM 6 IN. DIAM (OR LAYERS. SLEEVE MAY ALSO BE FORMED OF NO. 8 STEEL WIRE MESH HAVING A MIN 1 IN. LAP ALONG THE SMALLER) CAST OR DUCTILE IRON PIPE.CONDUIT — NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC LONGITUDINAL SEAM. TUBING OR NOM 6 IN. DIAM (OR SMALLER) STEEL CONDUIT.COPPER TUBING - NOM 6 IN. DIAM (OR 3. THROUGH PENETRANTS ONE METALLIC PIPE OR TUBE TO BE INSTALLED EITHER CONCENTRICALLY OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING. ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. PIPE OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF COPPER PIPE — NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE THE WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR TUBING MAY BE USED:

- I. FIRESTOP SYSTEM THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
- A. PACKING MATERIAL MIN 4 IN. THICKNESS OF MIN 4 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF THE FLOOR OR BOTH SURFACES OF THE WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL
- B. FILL, VOID OR CAVITY MATERIAL* (SEALANT) MIN 1 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL. AT THE POINT CONTACT LOCATION BETWEEN PIPE AND CONCRETE, A MIN 1/2 IN. DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE CONCRETE/PIPE INTERFACE ON THE TOP SURFACE OF FLOOR AND ON BOTH SURFACES OF WALL
- NOTE: AN APPROVED EQUAL SHALL BE ALLOWED PER COMPLIANCE WITH SECTIONS 712 & 713 OF THE FBC 2017 EDITION

SLEEVE, FLUSH WITH ROOM SURFACE OF WALL. . NOTE: AN APPROVED EQUAL SHALL BE ALLOWED PER COMPLIANCE WITH SECTIONS 712 AND 713 OF THE FBC 6. NOTE: AN APPROVED EQUAL SHALL BE ALLOWED PER COMPLIANCE WITH SECTIONS 712 AND 713 OF THE FBC 2017 EDITION. 2017 EDITION.





1. FLOOR OR WALL ASSEMBLY MIN 5-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE FLOOR OR MIN 6 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF OPENING IS 29 IN. 2. THROUGH-PENETRANTS ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:

A. STEEL PIPE NOM 20 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE. B. CONDUIT NOM 6 IN. DIAM (OR SMALLER) STEEL CONDUIT OR NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING

3. PIPE COVERING MAX 3 IN. THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MIN 3.5 PCF) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY- APPLIED SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT TAPE SUPPLIED WITH THE PRODUCT. PIPE COVERING TO TERMINATE MIN 6 IN. FROM EACH SIDE OF FLOOR OR WALL ASSEMBLY

4. FIRESTOP SYSTEM THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING

A. PIPE COVERING* MAX 3 IN. THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MIN 5.2 PCF) UNFACED MINERAL WOOL UNITS EXTENDING MIN 6 IN. BEYOND EACH SURFACE OF THE FLOOR OR WALL. PIPE COVERING SECURED WITH NO. 18 GAUGE TIE WIRE 3 IN. BEYOND EACH SURFACE OF THE CONCRETE SLAB. THE ANNULAR SPACE SHALL BE MIN 1 IN. TO MAX 2-1/4 IN.

1. WALL ASSEMBLY THE 1 OR 2 HR FIRE-RATED GYPSUM BOORD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U400 SERIES WALL OR PARTITION DESIGN IN THE UL FIRE

RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES. A. STUDS "C-T" SHAPED STUDS 1-5/8 IN. WIDE BY 2-1/2 IN. DEEP, FABRICATED FROM 25 MSG GALV STEEL, SPACED MAX 24 IN. CC. B. GYPSUM BOARDS- ONE LAYER OF NOM 1 IN. THICK, 24 IN. WIDE GYPSUM LINER AND 5/8 IN. THICK. 4 FT

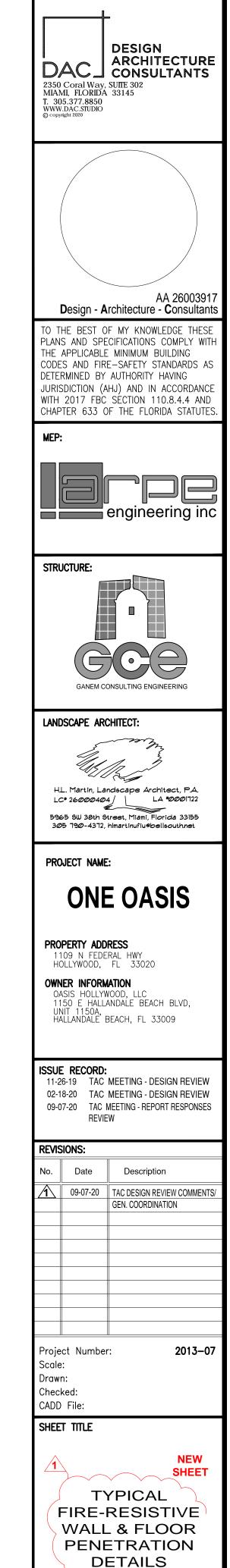
WIDE GYPSUM BOARD WITH SQUARE OR TAPERED EDGES. THE GYPSUM BOARD TYPE, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAX DIAM OF OPENING IS 4

IN. THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.

A. COPPER TUBING NOM 1 IN. DIAM (OR SMALLER) TYPE L COPPER TUBING B. COPPER PIPE NOM 1 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

4. TUBE INSULATION -- PLASTICS+ NOM 3/4 IN. THICK ACRYLONITRILE BUTADIENE/POLYVINYL CHLORIDE (MJ/PVC) FLEXIBLE FOAM FURNISHED IN THE FORM OF TUBING. THE ANNULAR SPACE BETWEEN THE INSULATED PIPE AND THE PERIPHERY OF THE STEEL SLEEVE SHALL BE MIN 1/4 IN. AND MAX 1-1/8 IN. 5. FIRESTOP SYSTEM - THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:

A. PACKING MATERIAL MIN 1-5/8 OR 2-1/4 IN. THICKNESS OF MIN 4 PCF MINERAL WOOL BATT INSULATION FIRMLY POCKED INTO SLEEVE ON ONE SIDE OF THE WALL AS A PERMANENT FORM FOR 1 AND 2 HR WALLS, RESPECTIVELY. PACKING MATERIAL TO BE RECESSED FROM THE ROOM SIDE OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL. B. FILL, VOID OR CAVITY MATERIAL: -- SEALANT MIN 1-1/2 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN



A8.2′

ARCHITECT:

8	SYSTEM NO. W-L-5143
7.3	SCALE: N.T.S.

GENERAL PROVISIONS

THE CONTRACTOR SHALL OBTAIN FROM THE OWNER COPIES OF ALL AVAILABLE REGULATORY AGENCY PERMITS AND LOCAL AGENCY PERMITS

- ALL CONSTRUCTION PROJECTS 1 OR MORE ACRES IN SIZE THAT DISCHARGE TO OFFSITE AREAS ARE REQUIRED TO COMPLY WITH THE REQUIREMENTS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORMWATER DISCHARGE FROM SMALL AND LARGE CONSTRUCTION ACTIVITIES. IN ORDER TO MEET NPDES REQUIREMENTS, THE CONTRACTOR IS RESPONSIBLE FOR PREPARING A STORMWATER POLLUTION PREVENTION PLAN (SWPPP), IMPLEMENTING, INSPECTING, MAINTAINING, AND REPORTING ON ALL ELEMENTS OF THE SWPPP, COMPLETING AND SUBMITTING THE REQUIRED NOTICE OF INTENT (N01) AND NOTICE OF TERMINATION (NOT) FORMS AS THE OPERATOR, AND PAYING ALL ASSOCIATED FEES, FOR PROJECTS LESS THAN 1 ACRE IN SIZE THAT ARE NOT REQUIRED TO COMPLY WITH THE NPDES GENERAL PERMIT, THE CONTRACTOR IS STILL RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING EROSION AND SEDIMENT CONTROL MEASURES PRIOR O AND DURING CONSTRUCTION IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.
- . UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR SHALL USE THE GEOMETRY PROVIDED ON THE CONSTRUCTION PLANS. BENCHMARK INFORMATION SHALL BE PROVIDED TO THE CONTRACTOR BY THE OWNER OR OWNERS SURVEYOR, ANY DISCREPANCIES BETWEEN FIELD MEASUREMENTS AND CONSTRUCTION PLAN INFORMATION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.
- . BASE SURVEY INFORMATION INCLUDING BUT NOT LIMITED TO ELEVATIONS, EASEMENTS, RIGHTS OF WAY, AND OTHER TOPOGRAPHIC INFORMATION HAS BEEN PREPARED BY OTHER PROFESSIONALS. R ENGINEERING, INC. NO RESPONSIBILITY FOR THE ACCURACY OF THIS INFORMATION
- . THIS SET OF PLANS MAY CONTAIN DRAWINGS PREPARED BY OTHER PROFESSIONALS, WHICH CONTAIN THE NAME, ADDRESS, AND LOGO OF THE PROFESSIONAL. SZAUER ENGINEERING, INC. IS NOT ESPONSIBLE FOR DRAWINGS PREPARED BY OTHER PROFESSIONALS THE CONTRACTOR SHALL SUBMIT (6) COPIES OF SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING THE MATERIALS REQUIRED FOR CONSTRUCTION. PRIOR TO SUBMISSION, THE CONTRACTOR SHALL THOROUGHLY CHECK SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES FOR COMPLETENESS AND FOR COMPLIANCE WITH THE CONSTRUCTION PLANS AND SHALL VERIFY ALL
- DIMENSIONS AND FIELD CONDITIONS AND SHALL COORDINATE THE SHOP DRAWINGS WITH THE REQUIREMENTS FOR OTHER RELATED WORK. THE CONTRACTORS RESPONSIBILITY FOR ERRORS AND VISSIONS IN SUBMITTALS IS NOT RELIEVED BY THE ENGINEERS REVIEW OF SUBMITTALS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER, IN WRITING AT THE TIME OF SUBMISSION, OF DEVIATIONS IN SUBMITTALS FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS PROTECT BENCHMARKS, PROPERTY CORNERS, AND OTHER SURVEY MONUMENTS FROM DAMAGE OR DISPLACEMENT. IF MARKER NEEDS TO BE REMOVED IT SHALL BE REFERENCED BY LICENSED LAND
- SURVEYOR AND REPLACED, AS NECESSARY, BY SAME. . THE CONTRACTOR IS RESPONSIBLE FOR ALL QUALITY CONTROL TESTING. AS A MINIMUM, TESTING SHALL INCLUDE A) PIPING AND STRUCTURAL EXCAVATION, BEDDING AND BACKFILL MATERIALS AND
- DENSITY TESTS: B) DETERMINATION OF COMPACTIVE EFFORT NEEDED FOR COMPLIANCE WITH THE DENSITY REQUIREMENTS: C) PORTLAND CEMENT CONCRETE AND ASPHALT PAVING QUALITY CONTROL. TESTING INCLUDING DESIGN MIX REVIEW, MATERIALS, FIELD SLUMP AND AIR CONTENT, AND FIELD AND LAB CURED STRENGTH SAMPLES AND TESTING. . IN ADDITION TO QUALITY CONTROL TESTING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REQUIRED TESTING OR APPROVALS FOR ANY WORK (OR ANY PART THEREOF) IF LAWS OR REGULATIONS OF
- ANY PUBLIC BODY HAVING JURISDICTION SPECIFICALLY REQUIRE TESTING, INSPECTIONS OR APPROVAL. THE CONTRACTOR SHALL PAY ALL COSTS IN CONNECTION THEREWITH AND SHALL FURNISH THE OWNER AND ENGINEER THE REQUIRED CERTIFICATES OF INSPECTION, TESTING OR APPROVAL. 10. ANY DESIGN OR TESTING LABORATORY UTILIZED BY THE CONTRACTOR SHALL BE AN INDEPENDENT LABORATORY ACCEPTABLE TO THE OWNER AND THE ENGINEER, APPROVED IN WRITING, AND
- COMPLYING WITH THE LATEST EDITION OF THE "RECOMMENDED REQUIREMENTS FOR INDEPENDENT LABORATORY QUALIFICATION", PUBLISHED BY THE AMERICAN COUNCIL OF INDEPENDENT
- 11. TESTING RESULTS SHALL BE PROVIDED TO THE OWNER/OPERATOR AND THE ENGINEER. ALL TEST RESULTS SHALL BE PROVIDED (PASSING AND FAILING) ON A REGULAR AND IMMEDIATE BASIS.

THE UTILITY DATA SHOWN ON THESE PLANS WAS LOCATED BY THE RESPECTIVE UTILITY, OR IS BASED ON UTILITY DRAWINGS, MAPS, OR FIELD RECONNAISSANCE.

2 THE ENTIRE PROJECT SITE SHALL BE THOROLIGHLY CLEANED AT THE COMPLETION OF THE WORK CLEAN ALL INSTALLED PIPELINES. STRUCTURES, SIDEWALKS, PAVED AREAS, ACCUMULATED SILT IN ONDS, PLUS ALL ADJACENT AREAS AFFECTED BY CONSTRUCTION, AS DIRECTED BY THE OWNER OR JURISDICTIONAL AGENCY. EQUIPMENT TO CLEAN THESE SURFACES SHALL BE SUBJECT TO APPROVAL BY THE OWNER.

UTILITY GENERAL NOTES

- THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THE PLANS HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY, IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE VARIOUS AN UNDERGROUND UTILITY, WHETHER SHOWN ON THE PLANS OR LOCATED BY THE UTILITY COMPANY. ANY UTILITIES, WHETHER SHOWN ON THESE PLANS OR NOT, THAT INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE CLOSELY COORDINATED WITH THE ENGINEER AND THE RESPECTIVE UTILITY COMPANY FOR RELOCATION OR PROPER INSTRUCTION.
- . A SINGLE POINT UTILITY IDENTIFICATION SERVICE HAS BEEN SET UP FOR EXISTING UTILITIES. THE CONTRACTOR IS TO CONTACT THE SUNSHINE STATE ONE CALL CENTER BY DIALING "811" AT LEAST TWO (2) AND NO MORE THAN FIVE (5) WORKING DAYS PRIOR TO THE SPECIFIC CONSTRUCTION ACTIVITY FOR FIELD LOCATION. NOTE THAT NOT ALL UTILITIES PARTICIPATE IN THIS PROGRAM. THE CONTRACTOR SHOULD CONTACT ALL NON-PARTICIPATING UTILITIES SEPARATELY FOR FIELD LOCATION OF THEIR FACILITIES AT LEAST TWO (2) WORKING DAYS PRIOR TO CONSTRUCTION. PER FLORIDA STATUTE 553.851, THE CONTRACTOR OR EXCAVATOR IS REQUIRED TO NOTIFY THE GAS COMPANY TWO (2) WORKING DAYS PRIOR TO STARTING EXCAVATION.
- THE CONTRACTOR SHALL KEEP LOCATE TICKETS UP TO DATE AT ALL TIMES.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION WITH EACH UTILITY AND ALL COSTS ASSOCIATED WITH THE PROTECTION OF EXISTING FACILITIES DURING CONSTRUCTION. THE CONTRACTOR SHALL ALSO COORDINATE NECESSARY RELOCATIONS OR OTHER CONSTRUCTION RELATED MATTERS WITH EACH UTILITY 5. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAINTAIN IN SERVICE ALL EXISTING PIPING ENCOUNTERED DURING CONSTRUCTION UNLESS OTHERWISE INDICATED IN THE DRAWINGS. ANY PIPING
- TYPICAL DETAILS AS SHOWN ARE TO ILLUSTRATE THE ENGINEERS INTENT AND ARE NOT PRESENTED AS A SOLUTION TO ALL CONSTRUCTION PROBLEMS ENCOUNTERED IN THE FIELD. THE CONTRACTOR MAY ALTER THE METHOD OF CONSTRUCTION TO SUIT FIELD CONDITIONS, PROVIDING HE SUBMITS A PROPOSAL FOR AN ALTERNATE METHOD TO THE ENGINEER FOR APPROVAL AND USES MATERIALS AS

WHICH CAN BE REMOVED DURING CONSTRUCTION WITHOUT UNDUE INTERRUPTION OF SERVICE MAY BE REMOVED AND REPLACED BY THE CONTRACTOR WITH THE PERMISSION OF THE OWNER AND THE

- DESIGNATED IN THE SPECIFICATIONS. 3. FOR EACH RESPECTIVE PIPELINE CONSTRUCTION REQUIRED, THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION, DEPTH, AND ALIGNMENT OF ALL EXISTING PIPES, CABLES, ETC. TO BE CROSSED OR ONNECTED TO JE THE CONTRACTOR DEEMS NECESSARY (A) A CHANGE IN ALIGNMENT OR DEPTH OR THE NEED FOR ADDITIONAL FITTINGS BENDS OR COUPLINGS WHICH REPRESENT A DEPARTURE ROM THE CONTRACT DRAWING, OR (B) A NEED FOR RELOCATION OF EXISTING UTILITIES, THEN DETAILS OF SUCH DEPARTURES, RELOCATIONS, OR ADDITIONAL FITTINGS, INCLUDING CI
- PORTIONS OF THE PROJECT AND THE REASONS THEREFORE. SHALL BE SUBMITTED WITH SHOP DRAWINGS, APPROVED DEPARTURES FOR THE CONTRACTORS CONVENIENCE SHALL BE MADE AT NO DDITIONAL COST TO THE OWNER. . THE CONTRACTOR SHALL PROVIDE AT HIS OWN EXPENSE ALL NECESSARY TEST PUMPING EQUIPMENT, WATER, WATER METERS, PRESSURE GAUGES, AND OTHER EQUIPMENT, MATERIAL AND FACILITIES
- REQUIRED FOR ALL PROVIDE AT HIS OWNE PARENCE ALL RECESSART LEST POWERING EQUIRMENT, WATER, WATER, WATER, RESSURE GAUGES, AND OTHER EQUIPMENT, WATERIAL AND FACILITES REQUIRED FOR ALL HYDROSTATIC, LEAKAGE, AND PRESSURE TESTING. THE CONTRACTOR SHALL CONTACT THE ENGINEER AND THE OWNER IN WRITTEN FORM, FORTY-EIGHT (48) HOURS IN ADVANCE OF PROPOSED TESTING. THE CONTRACTOR SHALL PERFORM SATISFACTORY PRETESTING PRIOR TO NOTIFICATION.

AS-BUILT DRAWING REQUIREMENTS

- AS-BUILT DRAWINGS SHALL BE PROVIDED BY THE CONTRACTOR TO THE ENGINEER THREE WEEKS PRIOR TO FINAL INSPECTION. ALL AS-BUILT DATA SHALL BE PROVIDED BY A FLORIDA LICENSED SURVEYOR, SIGNED, SEALED AND DATED BY THE RESPONSIBLE PARTY.
- E WORK, DELIVER THE DRAWINGS DOCUMENTING AS-BUILT INFORMATION, MEASURED BY A LICENSED SURVEYOR, TO THE ENGINEER, IN GOOD CONDITION AND FREE FROM ANY EXTRANEOUS NOTATION. THE AS-BUILT INFORMATION IS TO INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING A. HORIZONTAL LOCATIONS AND VERTICAL ELEVATIONS FOR ALL UTILITY AND STORM STRUCTURES INCLUDING BUT NOT LIMITED TO MANHOLES, INLETS AND CLEANOUTS, INCLUDING STRUCTURE TOP AND INVERT ELEVATIONS.

B. DISTANCE ALONG PIPELINES BETWEEN STRUCTURES.

- C. STORMWATER POND TOP OF BERM AND POND BOTTOM ELEVATIONS AND HORIZONTAL DIMENSIONS MEASURED AT A MINIMUM OF TEN LOCATIONS PER POND, AT LOCATIONS DESIGNATED BY THE ENGINEER. TOP OF POND HORIZONTAL DIMENSIONS ARE ALSO TO BE TIED TO PROPERTY CORNERS, EASEMENTS, AND RIGHTS-OF-WA D. STORMWATER CONTROL STRUCTURE DIMENSIONS AND ELEVATIONS, INCLUDING ALL WEIRS, SLOTS, ORIFICES, GRATES, AND SKIMMERS.
- E. STORMWATER CONVEYANCE SYSTEMS INCLUDING DIMENSIONS, ELEVATIONS, CONTOURS, AND CROSS SECTIONS.
- F. HORIZONTAL LOCATIONS AND VERTICAL ELEVATIONS OF ALL UTILITY VALVES, FITTINGS, CONNECTION POINTS, ETC
- G. VERTICAL ELEVATIONS OF ALL PIPELINES AT CROSSINGS OF POTABLE WATER MAINS (WHETHER THE WATER MAIN IS EXISTING OR NEW) IN ORDER TO DOCUMENT THAT THE MINIMUM REQUIRED VERTICAL SEPARATION HAS BEEN MET H. UTILITY PIPELINE TIED HORIZONTALLY TO EDGE OF PAVEMENT AND RIGHT-OF-WAY LINES. LOCATED EVERY 200-FT PLUS ALL CHANGES IN HORIZONTAL OFFSET.
- . PAVEMENT WIDTH AND ELEVATIONS AT THE CENTERLINE AND EDGE OF PAVEMENT EVERY 200 FEET PLUS AT ALL CHANGES IN LONGITUDINAL SLOPE, CROSS SLOPE, INLET LOCATIONS, AND AT ALL DRIVEWAY AND STREET INTERSECTIONS. FOR PARKING LOTS, RECORD CENTERLINE AND EDGE OF PAVEMENT ELEVATIONS ALONG ALL DRIVE AISLES AND ISLANDS J. ALL PARKING AREAS AND SIDEWALK RAMPS DESIGNATED FOR HANDICAP ACCESS SHALL CONTAIN HORIZONTAL AND VERTICAL MEASUREMENTS IN ORDER TO VERIFY REQUIRED WIDTHS AND SLOPES HAVE BEEN MET.
- K. HORIZONTAL AND VERTICAL DATA FOR ANY CONSTRUCTION THAT DEVIATES FROM THE APPROVED ENGINEERING DRAWINGS.
- L. WHERE THE PLANS CONTAIN SPECIFIC HORIZONTAL LOCATION DATA, SUCH AS STATION AND OFFSET, THE AS-BUILT DRAWINGS ARE TO REFLECT THE ACTUAL HORIZONTAL LOCATION. M. WHERE THE PLANS CONTAIN SPECIFIC VERTICAL ELEVATION DATA, THE AS-BUILT DRAWINGS ARE TO REFLECT THE ACTUAL MEASURED VERTICAL ELEVATION

EROSION AND SEDIMENT CONTROL

- EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PROVIDED AND INSTALLED PRIOR TO COMMENCEMENT OF CONSTRUCTION. SEDIMENT CONTROL CONSISTS OF SILT FENCING AND FLOATING URBIDITY BARRIERS PER FDOT INDEX NO. 102 AND 103. EROSION CONTROL CONSISTS OF SEEDING AND MULCHING, SODDING, WETTING SURFACES, PLACEMENT OF COARSE AGGREGATE, TEMPORARY
- IAINTAIN TEMPORARY EROSION CONTROL SYSTEMS AS DIRECTED BY OWNER OR GOVERNING AUTHORITIES TO CONTROL EROSION AND SILTATION DURING LIFE OF CONTRACT. OWNER HAS AUTHORITY TO LIMIT SURFACE AREA OF ERODIBLE EARTH MATERIAL EXPOSED BY CLEARING AND GRUBBING, EXCAVATION, TRENCHING, BORROW AND EMBANKMENT OPERATIONS. OWNER ALSO HAS AUTHORITY TO DIRECT CONTRACTOR TO PROVIDE IMMEDIATE PERMANENT OR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES.
- CONTRACTOR SHALL RESPOND TO EROSION AND SEDIMENT CONTROL MAINTENANCE REQUIREMENTS OR IMPLEMENT ADDITIONAL MEASURES TO CONTROL EROSION ORDERED BY OWNER OR GOVERNING UTHORITIES WITHIN 48 HOURS OR SOONER IF REQUIRED AT NO ADDITIONAL COST TO THE OWNER. 4. CONTRACTOR WILL BE REQUIRED TO INCORPORATE PERMANENT EROSION CONTROL FEATURES INTO PROJECT AT EARLIEST PRACTICAL TIME TO MINIMIZE NEED FOR TEMPORARY CONTROLS.
- . THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE PLANS REPRESENT A MINIMUM REQUIREMENT. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING ADDITIONAL EROSION AND EDIMENT CONTROL MEASURES NEEDED IN ORDER TO PREVENT THE TRANSFER OF SEDIMENT FROM THE PROJECT AREA AND PREVENT THE EROSION OF SURFACES DURING CONSTRUCTION, AS NEEDED TO PROTECT ADJACENT PROPERTIES AND WATER BODIES.
- . GRASS ALL DISTURBED AREAS WITHIN 7 DAYS OF INITIAL DISTURBANCE. TYPE OF GRASSING SHALL BE AS FOLLOWS: TEMPORARY GRASSING TO BE SODDING AT ALL DRAINAGE STRUCTURES, RETENTION AREAS, SWALES AND DITCHES, AND WHERE SLOPES ARE STEEPER THAN 5:1. TEMPORARY GRASSING CAN BE SEED AND MULCH AT ALL OTHER LOCATIONS UNLESS OTHERWISE INDICATED IN THE DRAWINGS OR SPECIFICATIONS.
- . INSPECT EVERY TWO WEEKS DURING CONSTRUCTION. REMOVE ANY SEDIMENT BUILD-UP. REPAIR AND REINSTALL ANY DAMAGED OR MISSING SEDIMENT CONTROL MEASURES. INSTALL ADDITIONAL
- AREAS TO BE PAVED SHALL BE TREATED WITH A BITUMINOUS PRIME COAT AND SANDED TO MINIMIZE EROSION. WHERE PAVING IS SCHEDULED TO OCCUR MORE THAN 48 HOURS AFTER INSTALLATION OF BASE COURSE. AREAS TO RECEIVE CONCRETE PAVING SHALL BE EITHER PROTECTED WITH A LAYER OF FDOT COARSE AGGREGATE MATERIAL OR SHALL BE PAVED WITHIN 48 HOURS OF INSTALLATION OF THE SUBGRADE. INSTALL FINAL SURFACE COURSES WITHIN 14 DAYS AFTER REMOVAL OF EXISTING PAVEMENT.

TRAFFIC CONTROL

- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING A MAINTENANCE OF TRAFFIC (M.O.T.) PLAN PRIOR TO CONSTRUCTION. THE M.O.T. PLAN SHALL SHOW ALL PROPOSED TRAFFIC CONTROL SIGNS, AVEMENT MARKINGS, AND BARRICADES, AND SHALL DETAIL ALL PROPOSED CONSTRUCTION SEQUENCING. THE M.O.T. PLAN SHALL BE APPROVED BY THE ENGINEER, OWNER, AND ROAD JURISDICTIONAL AGENCY PRIOR TO CONSTRUCTION. ALL PROPOSED ROADWAY AND DRIVEWAY LANE CLOSURES SHALL BE RESTRICTED TO THE HOURS BETWEEN 9:00 A.M. AND 4:00 P.M. UNLESS OTHERWISE AUTHORIZED IN THE APPROVED M.O.T.
- ALL CONSTRUCTION SIGNING AND MARKINGS SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND MAINTAINED DURING CONSTRUCTION IN ACCORDANCE WITH FDOT INDEX NO. 600 AND THE MANUAL ON NIFORM TRAFFIC CONTROL DEVICES (MUTCD). THE PLACEMENT OF THE SIGNING AND MARKINGS SHALL BE APPROVED IN THE FIELD BY THE ENGINEER PRIOR TO CONSTRUC

3. INSPECT TRAFFIC CONTROL DEVICES ON A DAILY BASIS TO ENSURE PLACEMENT OF BARRICADES AND FUNCTION OF LIGHTS IS MAINTAINED THROUGHOUT CONSTRUCTION.

- 4. CONTACT PROPERTY OWNERS AFFECTED BY CONSTRUCTION. COORDINATE TEMPORARY DRIVEWAY CLOSURES AND SEQUENCING. MAINTAIN ACCESS FOR ALL PROPERTY OWNERS DURING CONSTRUCTION.
- 5. WET UNSTABILIZED AREAS AS NECESSARY TO CONTROL DUST.
- 5. ADJUST TRAFFIC CONTROL DEVICES AS REQUIRED UNDER EMERGENCY CONDITIONS.
- . THE CONTRACTOR IS EXPECTED TO COORDINATE ITS ACTIVITIES WITH OTHER CONTRACTORS WHO MAY BE WORKING IN THE IMMEDIATE VICINITY.
- WHEN WORK OCCURS WITHIN 15-FT OF ACTIVE ROAD TRAVEL LANES BUT NO CLOSER THAN 2-FT FROM THE EDGE OF PAVEMENT, SIGNAGE AND WARNING DEVICES ARE TO BE INSTALLED IN ACCORDANCE WITH FDOT INDEX NO. 600 AND 602, FOR A 2-LANE ROADWAY AND PER INDEX # 612 FOR A 4 LANE HIGHWAY
- . TYPE I OR TYPE II BARRICADES AT 20-FT CENTERS SHALL BE PLACED AND MAINTAINED ALONG THE EDGE OF THE ROAD WHEREVER DROP-OFFS OR OTHER HAZARDS EXIST AND TO BLOCK ENTRANCE INTO COMPLETED OR PARTIALLY COMPLETED PAVEMENTS UNTIL SUCH PAVEMENTS ARE OPEN TO PUBLIC USE.

SITE PREPARATION

	REPAIRS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND NO EXTRA COMPENSATION SHALL
	STAKE OUT THE CONSTRUCTION, ESTABLISH LINES AND LEVELS, TEMPORARY BENCH MARKS, BATTEF DIMENSIONS RELATING TO INTERCONNECTION WITH EXISTING FEATURES. REPORT ANY INCONSIST ENGINEER BEFORE COMMENCING WORK.
	PROTECT ALL TREES AND SHRUBS LOCATED OUTSIDE THE RIGHT-OF-WAY, EASEMENTS, AND OWNER AREAS.
	WITHIN THE RIGHT-OF-WAY, EASEMENTS, AND OWNER SECURED PROPERTY, THE INTENT IS TO ALL ROADWAY CONSTRUCTION - TREES AND SHRUBS TO REMAIN WHERE LOCATED MORE THAN 15 FEET FI FURTHER. UTILITY PIPELINE CONSTRUCTION - TREES AND SHRUBS TO REMAIN OUTSIDE A 15 FOOT WIDI
	TREES TO REMAIN IN THE CONSTRUCTION AREA SHALL BE BOXED, FENCED OR OTHERWISE PROTEC STOCKPILES WITHIN BRANCH SPREAD
	AREAS TO RECEIVE CLEARING AND GRUBBING SHALL INCLUDE ALL AREAS TO BE OCCUPIED BY THE TREES OUTSIDE OF THESE AREAS ONLY AS INDICATED ON THE DRAWINGS OR AS APPROVED IN WRITIN
	CLEARING SHALL CONSIST OF REMOVING TREES AND BRUSH AND DISPOSAL OF OTHER MATERIALS THAT
١.	EXERCISE EXTREME CARE DURING THE CLEARING AND GRUBBING OPERATIONS. DO NOT DAMAGE EXIS
	GRUBBING SHALL CONSIST OF REMOVING AND DISPOSING OF STUMPS, ROOTS LARGER THAN T IN DIA SURFACE LEVEL OF THE GROUND.

- 1. GRADING SHOWN ON THESE PLANS ARE PROVIDED TO THE CONTRACTOR TO EXPRESS THE GENERAL GRADING INTENT OF THE PROJECT. THE CONTRACTOR SHALL BE EXPECTED TO GRADE THE ENTIRE SITE TO PROVIDE POSITIVE DRAINAGE IN ALL AREAS THROUGHOUT THE SITE. SMOOTH TRANSITIONS SHALL BE PROVIDED BETWEEN CONTOURS OR SPOT ELEV TO ACCOMPLISH THE GRADING INTENT. ALL SLOPES SHALL BE STABILIZED IMMEDIATELY AFTER FINAL GRADING HAS BEEN COMPLETED. CONTRACTOR SHALL NOTIFY OWNER AND ENGINEER PRIOR TO DEMOBILIZATION OF GRADING EQUIPMENT TO DETERMINE THAT THE GRADING INTENT HAS BEEN ACHIEVED.
- SHARP BREAKS IN GRADE, AND NO UNUSUALLY STEEP OR REVERSE CROSS SLOPES, THE STANDARD CROWN MAY HAVE TO BE CHANGED IN ORDER TO DRAIN POSITIVELY IN THE AREA OF CTIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO ACCOMPLISH THE ABOVE AND THE ENGINEER SHALL BE CONSULTED SO THAT HE MAY MAKE ANY AND ALL REQUIRED INTERP OF THE PLANS OR GIVE SUPPLEMENTARY INSTRUCTIONS TO ACCOMPLISH THE INTENT OF THE PLANS.
- SURFACES SHALL BE REASONABLY SMOOTH, COMPACTED, FREE FROM IRREGULAR SURFACE CHANGES AND COMPARABLE TO THE SMOOTHNESS OBTAINED BY BLADE GRADER OPEI
- BE WITHIN 1 INCH OF THE PROPOSED GRADE, ALL OTHER AREAS SHALL BE WITHIN 3 INCHES OF THE PROPOSED GRADE.

EXCAVATION, TRENCHING, AND FILL

- 1. THE CONTRACTOR SHALL RECOGNIZE AND ABIDE BY ALL OSHA EXCAVATION SAFETY STANDARDS, INCLUDING THE FLORIDA TRENCH SAFETY ACT (FS 553.60-553.64). ANY MATERIAL, CONSTRUCTION METHODS, OR MATERIAL COST TO COMPLY WITH THESE LAWS SHALL BE INCIDENTAL TO THE CONTRACT. 2. ROUGH EXCAVATE AND GRADE ANY PROPOSED STORMWATER PONDS AT THE START OF SITE GRADING ACTIVITIES. DIRECT SITE RUNOFF TO
- THE PONDS TO MINIMIZE RUNOFF TO OFFSITE AREAS. 3. POND CONSTRUCTION SHALL RESULT IN THE FINISHED POND HAVING SIDE SLOPES AND DIMENSIONS THAT ARE IN ACCORDANCE WITH THE
- REQUIRED SIDE SLOPES, OR THE POND VOLUME IS NOT WITHIN THREE (3) PERCENT OF THE DESIGN VOLUME, THE CONTACTOR MAY BE REQUIRED TO MAKE CORRECTIONS TO THE POND AT NO ADDITIONAL COST TO THE OWNER. 4. FIELD DENSITY TESTING FREQUENCIES: A) ONE TEST FOR EACH 10,000 SQUARE FEET OR FRACTION THEREOF PER LIFT OF GENERAL
- FEET OR FRACTION THEREOF PER LIFT OF GENERAL BACKFILLING IN THE PIPELINE TRENCH; D) ONE TEST PER LIFT PER EACH CHANGE IN TYPE OF FILL; E) ONE TEST PER 1000 SQUARE FEET OF AVEMENT SUBGRADE, MINIMUM OF 2 TESTS. 5. IT IS INTENDED THAT PREVIOUSLY EXCAVATED MATERIALS CONFORMING TO THE FOLLOWING REQUIREMENTS BE UTILIZED WHEREVER POSSIBLE
- A. ACCEPTABLE MATERIALS: AASHTO M145 CLASSIFICATION A-1, A-3, A-2-4, A-2-6; ASTM D2487 CLASSIFICATION GW, GP, GM, SM, SW, SP; JNLESS OTHERWISE DISAPPROVED WITHIN THE SOIL AND SUBSURFACE INVESTIGATION REPORTS. NO MORE THAN 12% OF ACCEPTABLE MATERIALS SHALL PASS THE NUMBER 200 SIEVE.
- B. UNACCEPTABLE MATERIALS: AASHTO M145 CLASSIFICATION A-2-5, A-2-7, A-4, A-5, A-6, A-7, A-8; ASTM D2487 CLASSIFICATION GC, SC, ML, VIH, CL, CH, OL, OH, PT; UNLESS OTHERWISE APPROVED WITHIN THE SOIL AND SUBSURFACE INVESTIGATION REPORTS
- 6. PROVIDE BARRIERS, WARNING LIGHTS AND OTHER PROTECTIVE DEVICES AT ALL EXCAVATIONS. 7. SIDEWALKS, ROADS, STREETS, AND PAVEMENTS SHALL NOT BE BLOCKED OR OBSTRUCTED BY EXCAVATED MATERIALS, EXCEPT AS AUTHORIZED BY THE ENGINEER, IN WHICH CASE ADEQUATE TEMPORARY PROVISIONS MUST BE MADE FOR SATISFACTORY TEMPORARY PASSAGE OF PEDESTRIANS, AND VEHICLES. MINIMIZE INCONVENIENCE TO
- PUBLIC TRAVEL OR TO TENANTS OCCUPYING ADJOINING PROPERTY. 8. FURNISH, INSTALL, AND MAINTAIN, WITHOUT ADDITIONAL COMPENSATION, SHEETING, BRACING, AND SHORING SUPPORT REQUIRED TO KEEP
- STRUCTURES, DAMAGE OR DELAY THE WORK, OR ENDANGER LIFE AND HEALTH. VOIDS OUTSIDE THE SUPPORTS SHALL BE IMMEDIATELY FILLED AND COMPACTED 9. ALL EXCAVATIONS SHALL BE MADE BY OPEN CUT UNLESS OTHERWISE INDICATED. SLOPE SIDES OF TRENCHES IN ACCORDANCE WITH OSHA
- REQUIREMENTS AND THE RECOMMENDATIONS CONTAINED WITHIN THE PROJECT GEOTECHNICAL REPORT. 10.EXCAVATE TRENCHES TO DEPTH INDICATED OR REQUIRED FOR INDICATED FLOW LINES AND INVERT ELEVATIONS. OVER EXCAVATE TRENCHES A MINIMUM OF 2 FEET WHERE EXCAVATIONS OCCUR WITHIN UNSUITABLE SOILS, AND REPLACE OVER EXCAVATED MATERIAL WITH SUITABLE SOILS.
- 11.EXCEPT AS OTHERWISE INDICATED, EXCAVATE FOR PRESSURE PIPING SO TOP OF PIPING IS MINIMUM 3 FEET BELOW FINISHED GRADE. 12 TRENCH BOTTOMS AND THE BOTTOMS OF ALL STRUCTURES SHALL BE KEPT DRY, COMPACTED, AND STABLE TO A DEPTH TWO FEET BELOW THE
- BOTTOM OF THE TRENCH OR STRUCTURE 13.ALL BEDDING, FILL, AND BACKFILL MATERIAL SHALL BE SUITABLE SOILS OR FLOWABLE FILL. WHERE TRENCH OR EXCAVATION IS WITHIN THE
- LOOSE DEPTH. 14.MINIMUM DENSITY REQUIREMENT (ASTM D1557 OR AASHTO T180): BACKFILL AND FILL UNDER AND WITHIN THE INFLUENCE AREA OF ROADWAYS

UTILITY SEPARATION REQUIREMENTS

- SEWAGE TREATMENT AND DISPOSAL SYSTEMS SHALL BE IN ACCORDANCE WITH THE FOLLOWING
- SANITARY SEWER AND RECLAIMED WATER MAIN
- BOTTOM OF THE WATER MAIN IS AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER.
- 2. THE VERTICAL SEPARATION BETWEEN WATER MAINS AND SANITARY AND STORM SEWER, WASTEWATER OR STORMWATER FORCE MAINS, AND RECLAIMED WATER MAINS SHALL BE IN ACCORDANCE WITH THE FOLLOWING:
- FROM VACUUM TYPE SANITARY SEWER OR STORM SEWER JOINTS, AND AT LEAST SIX FEET FROM GRAVITY SANITARY SEWER JOINTS

3. NO WATER MAIN SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF A SANITARY SEWER MANHOLE.

- 4. NEW OR RELOCATED FIRE HYDRANTS SHALL BE LOCATED SUCH THAT THE UNDERGROUND DRAIN (WEEP HOLE) IS AT LEAST: A. THREE FEET FROM ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, RECLAIMED WATER MAIN, OR VACUUM TYPE SANITARY SEWER
- B. SIX FEET FROM ANY EXISTING OR PROPOSED GRAVITY SANITARY SEWER AND WASTEWATER FORCE MAIN
- DO NOT INCLUDE PACKAGE SEWAGE TREATMENT FACILITIES AND PUBLIC WASTEWATER TREATMENT FACILITIES

REQUIREMENT THAT THE INSTALLED UNAPPROVED MEASURES BE REMOVED AND REPLACED AT NO COST.

- THE WATER MAIN ARE LESS THAN THE MINIMUM REQUIRED DISTANCE BETWEEN THE JOINTS IN THE OTHER PIPELINE
- 1) USE OF PRESSURE RATED PIPE CONFORMING TO AWWA STANDARDS FOR A GRAVITY OR VACUUM TYPE PIPELINE. 2) USE OF WELDED, FUSED, OR OTHERWISE RESTRAINED JOINTS FOR EITHER PIPELINE
- 3) USE OF WATERTIGHT CASING PIPE OR CONCRETE ENCASEMENT AT LEAST FOUR INCHES THICK FOR EITHER PIPE.

B. WHERE A WATER MAIN IS LESS THAN THREE FEET HORIZONTALLY FROM ANOTHER PIPELINE AND OR WHERE A WATER MAIN CROSSES ANOTHER PIPELINE LESS THAN THE REQUIRED MINIMUM SEPARATION:

WATER MAIN AND FOR THE OTHER PIPELINE IF THE OTHER PIPELINE COVEYS WASTEWATER OR RECLAIMED WATER.

. UNLESS OTHERWISE DIRECTED BY THE OWNER OR ENGINEER, THE CONTRACTOR IS EXPECTED TO CONTAIN ALL CONSTRUCTION ACTIVITIES WITHIN THE PROPERTY, RIGHT-OF-WAY, AND EASEMENTS AS INDICATED ON THE DRAWINGS. AT NO TIME SHALL THE CONTRACTOR DISTURB SURROUNDING PROPERTIES OR TRAVEL ON SURROUNDING PROPERTIES WITHOUT WRITTEN CONSENT FROM THE PROPERTY OWNER. ANY REPAIR OR RECONSTRUCTION OF DAMAGED AREAS IN SURROUNDING PROPERTIES SHALL BE REPAIRED BY THE CONTRACTOR ON AN IMMEDIATE BASIS. ALL COSTS FOR ALL BE PROVIDED. ER BOARDS, CENTERI INES, BASELINES, AND REFERENCE POINTS FOR THE WORK AND VERIEVAL

TENCIES IN THE PROPOSED GRADES, LINES AND LEVELS, DIMENSIONS AND LOCATIONS TO THE SECURED PROPERTY, PARTICULARLY THOSE TREES AND SHRUBS LOCATED ADJACENT TO WORK LOW TREES AND SHRUBS TO REMAIN IN ACCORDANCE WITH THE FOLLOWING SCHEDULE: NEW

FROM THE BACK OF CURB, OR OUTSIDE THE LIMITS OF EXCAVATION OR FILL AREAS, WHICHEVER IS IDE PATH. CENTERED ON THE PIPELINE. ECTED IN ACCORDANCE WITH DETAILS ON THE DRAWINGS. DO NOT PERMIT HEAVY EQUIPMENT OR

PROPOSED IMPROVEMENTS, AREAS FOR FILL AND SITE GRADING, AND BORROW SITES. REMOVE TING BY THE ENGINEER. THAT ENCROACH UPON OR OTHERWISE OBSTRUCT THE WORK.

ISTING STRUCTURES, PIPES OR UTILITIES.

DIAMETER, AND MATTED ROOTS. REMOVE TO A DEPTH OF NOT LESS THAN 18" BELOW THE ORIGINAL 10.ALL COMBUSTIBLE DEBRIS AND REFUSE FROM SITE PREPARATION OPERATIONS SHALL BE REMOVED TO LEGAL OFFSITE DISPOSAL AREAS.

2. ALL PAVING SURFACES IN INTERSECTIONS AND ADJACENT SECTIONS SHALL BE GRADED TO DRAIN POSITIVELY AND TO PROVIDE A SMOOTHLY TRANSITIONED DRIVING SURFACE FOR VEHICLES WITH N

3. UNIFORMLY SMOOTH GRADE THE SITE. DEPRESSIONS FROM SETTLEMENT SHALL BE FILLED AND COMPACTED. TOPS OF EMBANKMENTS AND BREAKS IN GRADE SHALL BE ROUNDED. FINISHED

4. SLOPE GRADES TO DRAIN AWAY FROM STRUCTURES AT A MINIMUM OF 'A-INCH PER FOOT FOR 10 FEET. FINISHED SURFACES ADJACENT TO PAVED AREAS AND WITHIN 10 FEET OF STRUCTURES SHALL 5. NEWLY GRADED AREAS SHALL BE PROTECTED FROM TRAFFIC AND EROSION. ALL SETTLEMENT OR WASHING AWAY THAT MAY OCCUR FROM ANY CAUSE PRIOR TO SEEDING OR ACCEPTANCE SHALL BE

AIRED AND GRADES RE_ESTABLISHED TO THE REQUIRED ELEVATIONS AND SLOPES AT NO ADDITIONAL COST TO THE OWNER

CONSTRUCTION DRAWINGS. IT IS THE CONTRACTORS SOLE RESPONSIBILITY TO ENSURE THAT THESE REQUIREMENTS HAVE BEEN MET. IF THE CONSTRUCTED SIDE SLOPES ARE STEEPER THAN THE

BACKFILLING, MINIMUM 2 TESTS EACH LAYER; B) ONE TEST FOR EACH 100 SQUARE FEET OR FRACTION THEREOF OF BACKFILL AROUND AND UNDER STRUCTURES; C) ONE TEST FOR EACH 100 SQUARE FEET OR FRACTION THEREOF OF BACKFILL AROUND AND UNDER STRUCTURES; C) ONE TEST FOR EACH 100 SQUARE FEET OR FRACTION THEREOF OF BACKFILL AROUND AND UNDER STRUCTURES; C) ONE TEST FOR EACH 100 SQUARE FEET OR FRACTION THEREOF OF BACKFILL AROUND AND UNDER STRUCTURES; C) ONE TEST FOR EACH 100 SQUARE FEET OR FRACTION THEREOF OF BACKFILL AROUND AND UNDER STRUCTURES; C) ONE TEST FOR EACH 100 SQUARE FEET OR FRACTION THEREOF OF BACKFILL AROUND AND UNDER STRUCTURES; C) ONE TEST FOR EACH 100 SQUARE FEET OR FRACTION THEREOF OF BACKFILL AROUND AND UNDER STRUCTURES; C) ONE TEST FOR EACH 300 LINEA

EXCAVATIONS WITHIN THE PROPERTY OR EASEMENTS PROVIDED, TO SUPPORT THE SIDES OF THE EXCAVATION, AND TO PREVENT ANY MOVEMENT WHICH MAY DAMAGE ADJACENT PAVEMENTS OR

INFLUENCE AREA OF ROADWAYS, STRUCTURES, FOUNDATIONS, OR SLABS, PLACE BACKFILL IN LAYERS OF 8 INCH LOOSE DEPTH. IN ALL OTHER AREAS, PLACE FILL AND BACKFILL IN LAYERS OF 12 INCH

STRUCTURES, SLABS, FOUNDATIONS = 98 PERCENT; BACKFILL AND FILL PLACED WITHIN PUBLIC ROAD RIGHT-OF-WAY AND UTILITY EASEMENTS = 95 PERCENT; BACKFILL AND FILL PLACED WITHIN POND AND ROAD EMBANKMENT = 95 PERCENT; BACKFILL AND FILL PLACED IN ALL OTHER AREAS = 90 PERCENT.

1. THE HORIZONTAL SEPARATION BETWEEN WATER MAINS AND SANITARY SEWER, STORM SEWER, WASTEWATER FORCE MAINS, STORMWATER FORCE MAINS, RECLAIMED WATER MAINS AND ONSITE A. THE OUTSIDE OF WATER MAINS SHALL BE A MINIMUM OF THREE FEET FROM THE OUTSIDE OF ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, VACUUM TYPE

B. THE OUTSIDE OF WATER MAINS SHALL BE A MINIMUM OF SIX FEET FROM THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY SANITARY SEWER AND WASTEWATER FORCE MAIN. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN THE OUTSIDE OF WATER MAINS AND THE OUTSIDE OF GRAVITY SANITARY SEWERS CAN BE REDUCED TO THREE FEET WHERE THE

C. THE OUTSIDE OF WATER MAINS SHALL BE A MINIMUM OF TEN FEET FROM ALL PARTS OF ANY EXISTING OR PROPOSED ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEM SUCH AS SEPTIC TANKS, DRAINFIELDS, AND GREASE TRAPS. ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS DO NOT INCLUDE PACKAGE SEWAGE TREATMENT FACILITIES AND PUBLIC WASTEWATER

A. WHEREVER POSSIBLE, WATER MAINS SHALL CROSS OVER EXISTING OR PROPOSED GRAVITY SANITARY SEWER, VACUUM TYPE SANITARY SEWER, AND STORM SEWER, SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES ABOVE THE OUTSIDE OF THE SEWER. WHERE IT IS NOT POSSIBLE FOR THE WATER MAIN TO CROSS OVER EXISTING OR PROPOSED GRAVITY SANITAR' SEWER, VACUUM TYPE SANITARY SEWER, AND STORM SEWER, THEN THE WATER MAIN CAN CROSS UNDER THESE TYPES OF PIPELINE SYSTEMS PROVIDED THE OUTSIDE OF THE WATER MAIN IS AT LEAST 12 INCHES BELOW THE OUTSIDE OF THE PIPELINE. AT THE CROSSING, THE PROPOSED PIPE JOINTS SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET

B. WHEREVER POSSIBLE, WATER MAINS SHALL CROSS OVER EXISTING OR PROPOSED RECLAIMED WATER MAINS, WASTEWATER FORCE MAINS AND STORMWATER FORCE MAINS. WHETHER THE WATER MAIN CROSSES OVER OR UNDER THESE TYPES OF PIPELINE SYSTEMS, THE OUTSIDE OF THE WATER MAIN SHALL BE AT LEAST 12 INCHES FROM THE OUTSIDE OF THE EXISTING OR ROPOSED RECLAIMED WATER MAIN, WASTEWATER FORCE MAIN AND STORMWATER FORCE MAIN. AT THE CROSSING, THE PROPOSED PIPE JOINTS SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM RECLAIMED WATER MAIN JOINTS AND STORMWATER FORCE MAIN JOINTS, AND AT LEAST SIX FEET FROM THE JOINTS OF WASTEWATER FORCE

C. TEN FEET FROM ANY ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEM SUCH AS SEPTIC TANKS, DRAINFIELDS, AND GREASE TRAPS. ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS

5. THE FOLLOWING ARE ACCEPTABLE ALTERNATIVE CONSTRUCTION VARIANCES WHERE IT IS NOT POSSIBLE TO MEET THE SEPARATION REQUIREMENTS, AND ARE ONLY TO BE IMPLEMENTED UPON RECEIPT OF EXPRESSED WRITTEN CONSENT FROM THE ENGINEER. IMPLEMENTATION OF THESE MEASURES WITHOUT THE EXPRESSED WRITTEN CONSENT OF THE ENGINEER COULD RESULT IN THE

A. WHERE A WATER MAIN IS LESS THAN THE REQUIRED MINIMUM HORIZONTAL DISTANCE FROM ANOTHER PIPELINE AND OR WHERE A WATER MAIN CROSSES ANOTHER PIPELINE AND JOINTS IN

1) USE OF PIPE OR CASING PIPE, HAVING HIGH IMPACT STRENGTH (AT LEAST EQUAL TO 0.25 INCH THICK DUCTILE IRON PIPE), OR CONCRETE ENCASEMENT AT LEAST FOUR INCHES THICK FOR THE

WATER AND RECLAIMED WATER DISTRIBUTION SYSTEMS

1. THE ENTITY THAT WILL OPERATE AND MAINTAIN THE WATER SYSTEMS SHOWN ON THESE PLANS IS THE CITY OF HOLLYWOOD. THE CONTRACTOR SHALL MEET ALL THE REQUIREMENTS OF THE CITY OF HOLLYWOOD-FLORIDA.

2. ALL WATER AND RECLAIMED MAIN PIPE SHALL BE EITHER DUCTILE IRON OR PVC, UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

6. DUCTILE IRON PIPE AND FITTINGS WITHIN 10 FEET OF GAS MAINS SHALL HAVE AN 8-MIL POLYETHYLENE WRAP IN ACCORDANCE WITH ANSI/AWWA C105/A21.5

3. INSTALL ALL WATER AND RECLAIMED MAINS AT A MINIMUM 36 INCHES OF COVER.

4. BURIED DUCTILE IRON PIPE SHALL CONFORM WITH ANSI/AWWA C150/A21.50 AND C151/ A21.51, AND SHALL HAVE A MINIMUM WORKING PRESSURE OF 150 PSI. BURIED PIPE SHALL COMPLY WITH THE FOLLOWIN PRESSURE CLASS (PC) DESIGNATIONS UNLESS OTHERWISE INDICATED ON THE DRAWINGS: A) 12" DIAMETER AND SMALLER = PC 350; B) 14" THROUGH 24" DIAMETER = PC 250; C) 30" THROUGH 64" DIAMETER = PC 200. 5. EXPOSED PIPE 4" AND LARGER SHALL BE DUCTILE IRON FLANGED AND SHALL CONFORM WITH AWWA/ANSI C115/A21.15. AND SHALL HAVE A MINIMUM WORKING PRESSURE OF 150 PSI. FLANGED PIPE SHALL COMPLY

WITH THE FOLLOWING THICKNESS CLASS (TC) DESIGNATIONS UNLESS OTHERWISE INDICATED ON THE DRAWINGS: A) 4" DIAMETER = TC 54; B) T THROUGH 24" DIAMETER = TC 53

7. PVC PIPE 4* - 17 SHALL CONFORM TO AWWA C900. PIPE 14* - 36" SHALL CONFORM TO AWWA C905. PIPE SHALL CONFORM TO ASTM D1784, TYPE I, GRADE I, 4000 PSI DESIGN STRESS, AND SHALL BE NATIONAL SANITATION FEDERATION (NSF) APPROVED. PIPE SHALL BE CLASS 150 (DR18) WITH MARKINGS ON EACH SECTION SHOWING CONFORMANCE TO THE ABOVE SPECIFICATIONS. JOINTS SHALL BE RUBBER GASKETE CONFORMING TO AWWA C900 OR C905 THE BELL SHALL BE INTEGRAL WITH THE PIPE AND OF EQUAL OR GREATER PRESSURE RATING. THE BELL OF PIPE AND FITTINGS USING PUSH-ON JOINTS SHALL HAVE AN

8. ALL FITTINGS SHALL BE MANUFACTURED OF DUCTILE IRON, CONFORMING TO ANSI/AWWA C110/A21.10 OR ANSI/AWWA C153/A21.53. ALL FULL BODY (C110/A21.10) FITTINGS SHALL BE PRESSURE RATED TO 250 PSI, MINIMUM. ALL COMPACT FITTINGS (C153/A21.53) SHALL BE PRESSURE RATED TO 350 PSI, MINIMUM.

9. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE LINED AND COATED. INTERIOR LINING SHALL BE STANDARD THICKNESS CEMENT MORTAR LINING PER ANSI/AWWA C104/A21.4. EXTERIOR COATING FOR BURIED PIPE AND FITTINGS SHALL BE A PETROLEUM ASPHALTIC COATING IN ACCORDANCE WITH ANSI/AWWA C110/A21.10. EXTERIOR COATING OF EXPOSED PIPE AND FITTINGS SHALL BE FACTORY APPLIED RUST INHIBITING EPDXY PRIMER, MINIMUM 3 MILS DRY FILM THICKNESS. AFTER INSTALLATION, EXTERIOR SURFACES SHALL BE PAINTED WITH TWO COATS TNEMEC SERIES 2 TNEME-GLOSS, GLIDDEN LIFE MASTER PRO HIGH PERFORMANCE ACRYLIC NO. 6900 SERIES, OR EQUAL, AT MINIMUM 4 MILS DRY FILM THICKNESS PER COAT. PAINT COLOR TO BE IN ACCORDANCE WITH LOCAL UTILITY REQUIREMENTS.

10.MECHANICAL AND PUSH ON JOINTS FOR DUCTILE IRON PIPE AND FITTINGS SHALL BE RUBBER GASKETED, CONFORMING TO ANSI/AWWA C111/A21.11. LUBRICANTS OTHER THAN THAT FURNISHED BY THE PIPE MANUFACTURER WITH THE PIPE SHALL NOT BE USED. 11.ALL FITTINGS SHALL BE RESTRAINED IN ACCORDANCE WITH DIPRA, "THRUST RESTRAINT DESIGNED FOR DUCTILE IRON PIPE". PIPE JOINTS SHALL BE RESTRAINED UPSTREAM AND DOWNSTREAM OF FITTINGS IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS OR THE TABLE SHOWN IN THE DRAWINGS, WHICHEVER IS GREATER, DUCTILE IRON RESTRAINED JOINTS SHALL BE AMERICAN FAST GRIP GASKET.

FLEX-RING, FIELD FLEX RING, LOK-RING, US PIPE TR-FLEX, EBAA MEGALUG, OR EQUAL. PVC PIPE JOINTS SHALL BE RESTRAINED USING MECHANICAL DEVICES, UNI-FLANGE BLOCK BUSTER SERIES 1350 OR ENGINEER APPROVED EQUAL. 12.ALL SERVICE PIPING (W -T) SHALL BE POLYETHYLENE. SDR-PR PE PIPE SHALL BE MANUFACTURED FROM PE3408 AND SHALL CONFORM TO AWWA C901. ALL PIPE SHALL BE DR9, PRESSURE CLASS 200 PSI. PIPE AND FITTINGS SHALL BE NSF APPROVED FOR THE USAGE TO WHICH THEY ARE TO BE APPLIED. JOINTS IN SDR-PR PE PIPE SHALL BE BUTT HEAT FUSION OR SOCKET HEAT FUSION TYPE. FITTINGS SHALL BE MANUFACTURED OF THE SAME MATERIAL AS THE PIPE AND SHALL BE OF THE SAME SDR OR LESS. PROVIDE ADAPTERS AS REQUIRED TO JOIN PE PIPE TO PIPE, FITTINGS AND EQUIPMENT OF OTHER MATERIALS

13 ALL SERVICE SADDLES SHALL CONSIST OF DUCTILE IRON BODIES IN ACCORDANCE WITH ASTM A536. WITH DOUBLE STAINLESS STEEL STRAPS, BOLTS, WASHERS AND NUTS. STAINLESS STEEL TO BE TYPE 304, NUTS TO BE TEFLON COATED. DUCTILE IRON BODY TO BE FUSION BONDED NYLON COATING, MINIMUM THICKNESS 12 MILS. OUTLET OF SADDLE TO HAVE NPT THREADS.

14.ALL SERVICES SHALL INCLUDE THE FOLLOWING: CURB STOPS, UNIONS AS REQUIRED, CORPORATION STOPS. CONFORMANCE WITH AWWA C800 AND C901 IS REQUIRED. THE CONTRACTOR SHALL CUT "W" IN THE TOP CURB OF EACH WATER SERVICE AND A "V AT ALL VALVE LOCATIONS. CUT WS AND VS SHALL BE HIGHLIGHTED WITH BLUE PAINT. 15.UNLESS OTHERWISE NOTED IN THE PLANS, THE UTILITY COMPANY SHALL PROVIDE AND INSTALL WATER METERS AND RECLAIMED WATER METERS. CONTRACTOR SHALL CONSTRUCT WATER SERVICE AND

RECLAIMED WATER SERVICE TO THE CORPORATION STOP. 16.UNLESS OTHERWISE INDICATED OR SPECIFIED, ALL VALVES TWO INCHES AND SMALLER SHALL BE ALL BRASS OR BRONZE; VALVES OVER TWO INCHES SHALL BE IRON BODY, FULLY BRONZE OR BRONZE MOUNTED. 17.VALVES 4 INCHES AND LARGER SHALL BE LINED AND COATED. INTERIOR OF VALVES SHALL BE COATED WITH A RUST INHIBITING EPDXY PRIMER. FOLLOWED BY A COAL TAR EPDXY. TOTAL MINIMUM DRY FILM

THICKNESS OF 16 MILS, APPLIED AT THE FACTORY. EXTERIOR COATING ON BURIED VALVES SHALL BE RUST INHIBITING EPDXY PRIMER, FOLLOWED BY A COAL TAR EPDXY, TOTAL MINIMUM DRY FILM THICKNESS OF 16 MILS, APPLIED AT THE FACTORY. EXTERIOR COATING OF EXPOSED VALVES SHALL BE FACTORY APPLIED RUST INHIBITING EPDXY PRIMER, MINIMUM 3 MILS DRY FILM THICKNESS. AFTER INSTALLATION, EXTERIOR SURFACES SHALL BE PAINTED WITH TWO COATS TNEMEC SERIES 2 TNEME-GLOSS, GLIDDEN LIFE MASTER PRO HIGH PERFORMANCE ACRYLIC NO. 6900 SERIES, OR EQUAL, AT 4 MILS MINIMUM DRY FILM THICKNESS PER COAT. PAINT COLOR TO BE IN ACCORDANCE WITH LOCAL UTILITY REQUIREMENTS.

18.ALL VALVES 12* AND SMALLER SHALL BE GATE VALVES UNLESS OTHERWISE INDICATED ON THE DRAWINGS. GATE VALVES 3 INCHES TO 12 INCHES SHALL CONFORM TO AWWA C509. THE VALVES SHALL BE IRON BODY, ON FULLY ENCAPSULATED MOLDED RUBBER WEDGE COMPLYING WITH ASTM D2000, NON-RISING STEM WITH 0-RING SEALS. VALVES SHALL OPEN COUNTERCLI 19. TAPPING VALVES AND SLEEVES SHALL BE APPROVED AWWA TYPE OF THE SIZE REQUIRED. VALVES SHALL CONFORM TO THE REQUIREMENTS OF AWWA C509.

20. VALVES 14" AND LARGER SHALL BE BUTTERFLY VALVES. BUTTERFLY VALVES SHALL MEET OR EXCEED THE DESIGN STRENGTH, TESTING AND PERFORMANCE REQUIREMENTS OF AWWA C504, CLASS 150. VALVE BODY SHALL BE MECHANICAL JOINT END TYPE VALVE CONSTRUCTED OF CAST IRON OR DUCTILE IRON. DISC SHALL BE ONE PIECE CAST DESIGN WITH NO EXTERNAL RIBS TRANSVERSE TO FLOW. DISC SHALL BE CAST IRON OR DUCTILE IRON. THE RESILIENT SEAT SHALL MATE WITH A 304 OR 316 STAINLESS STEEL SURFACE

21. VALVE SEATS SHALL BE MECHANICALLY RETAINED, AND MAY BE INSTALLED ON EITHER THE BODY OR DISC. 0-RING SEATS ON VALVE DISCS ARE UNACCEPTABLE. SEATS FOR VALVES 14" DIAMETER AND LARGER SHALL BE FULLY FIELD REPLACEABLE WITHOUT THE USE OF SPECIAL TOOLS. OPERATORS OF THE ENCLOSED TRAVELING-NUT TYPE SHALL BE PROVIDED UNLESS OTHERWISE INDICATED

22. ALL BURIED VALVES SHALL BE PROVIDED WITH ADJUSTABLE VALVE BOXES APPROXIMATELY 5 INCHES IN DIAMETER WITH A MINIMUM THICKNESS OF 3/16 INCH CAST IRON. BOXES SHALL BE OF SUFFICIENT LENGTH TO OPERATE ALL VALVES BURIED IN THE GROUND, CONSISTING OF BASE, CENTER SECTION, AND TOP SECTION WITH COVER. VALVE BOXES LOCATED IN UNPAVED AREAS SHALL BE SLIP TYPE DESIGN TO PERMIT MOVEMENT OF THE TOP SECTION WITHOUT TRANSMITTING FORCES ONTO THE VALVE BODY. VALVE BOXES CAST INTO CONCRETE OR ASPHALT SURFACING SHALL HAVE BRASS COVERS. ALL VALVE BOX COVERS SHALL BE INTERNALLY CHAINED TO VALVE BOXES WITH AN APPROXIMATELY 18 INCH GALVANIZED CHAIN. VALVE BOX COVERS SHALL BE CAST WITH THE INSCRIPTION 'WATER' OR 'RECLAIMED WATER'.

23. PVC PIPE SHALL BE COLOR CODED BLUE (WATER MAINS) OR PURPLE (RECLAIMED WATER MAINS), STENCILED "WATER LINE" OR "RECLAIMED WATER LINE", AS APPLICABLE, (2" LETTERING ON TWO SIDES OF THE PIPE IN AT LEAST THREE AREAS PER PIPE SECTION) 24. INSTALL IDENTIFICATION TAPE ALONG ALL DUCTILE IRON PIPE AND PVC PIPE, MINIMUM THICKNESS 4 MILS, WIDTH 6 INCHES, LETTER SIZE 1 INCH. APPLY TAPE TO SURFACE OF PIPE, CONTINUOUSLY EXTENDING FROM OINT TO JOINT TAPE COLOR AND LETTERING SHALL BE BLACK PRINTING ON BLUE BACKGROUND (WATER MAINS) BLACK PRINTING ON PLIPPLE BACKGROUND (RECLAIMED WATER MAINS) PLACE TAPE AS FOLLOWS 7 - 8" PIPE - CENTER ALONG TOP HALF OF PIPE; 10P - 18" PIPE - PLACE ALONG BOTH SIDES OF THE TOP HALF OF PIPE; 20" PIPE AND LARGER - PLACE ON BOTH SIDES OF TOP HALF OF PIPE WITH A THIRD STRIP CENTERED ALONG TOP HALF OF PIPE.

25 INSTALL WARNING TAPE ALONG ALL PIPELINES, PLACED 2 FEFT ABOVE PIPE, TAPE SHALL RE 6-INCH WIDE VINYL CONTINUOUS TAPE, TAPE SHALL RE COLORED BLUE (WATER MAINS) OR PLIRPLE (RECLAIMED WATER MAINS) WITH BLACK LETTERING, CODED AND WORDED "CAUTION: WATER MAIN BURIED BELOW", OR "CAUTION: RECLAIMED WATER MAIN BURIED BELOW", APPLICABL

26. INSTALL LOCATING WIRE ALONG ALL PVC PIPELINES. WIRE SHALL BE COLOR-CODED 14 GAUGE CONTINUOUS INSULATED WIRE. COLOR CODING SHALL BE SIMILAR TO WARNING TAPE COLORS. INSTALL LOCATOR WIRE ALONG ALL PRESSURIZED PIPELINES 7 AND LARGER LOOP WIRE INTO ALL VALVE BOXES LOOPING TO OCCUR EVERY 500 FEET MINIMUM WHERE THERE ARE NO VALVE BOXES TO ALL OW LOOPING PROVIDE ACCESS BOXES PER CITY REQUIREMENTS. CHECK WIRE FOR ELECTRICAL CONTINUITY.

27. ALL CHANGES IN DIRECTION SHALL BE MADE WITH FITTINGS OR APPROVED JOINT DEFLECTION. BENDING OF PIPE, EXCEPT COPPER AND POLYETHYLENE, IS PROHIBITED. JOINT DEFLECTION SHALL NOT EXCEED 75% 28. TEST PROCEDURES SHALL BE APPROVED BY THE ENGINEER. ALL TESTS SHALL BE MADE IN THE PRESENCE OF THE ENGINEER AND UTILITY. NOTIFY THE ENGINEER AND THE UTILITY COMPANIES AT LEAST 72 HOURS

BEFORE ANY WORK IS TO BE INSPECTED OR TESTED. 29, PROVIDE ALL EQUIPMENT FOR TESTING, INCREMENTS ON GAGES USED FOR LOW PRESSURE AIR TESTING SHALL BE OF SCALED TO THE NEAREST 0.1 PSI, GAGES, PUMPS, AND HOSES SHALL BE IN GOOD WORKING ORDER WITH NO NOTICEABLE LEAKS.

30. ALL SERVICE LINES SHALL BE COMPLETED PRIOR TO TESTING, AND ARE SUBJECT TO THE SAME TESTING REQUIREMENTS AS THE MAIN LINE.

31. APPLY HYDROSTATIC TEST PRESSURE OF 150 PSI (WATER MAINS), 200 PSI (FIRE MAINS), OR 100 PSI (RECLAIMED WATER MAINS) FOR 10 MINUTES AND FOR SUCH ADDITIONAL PERIOD NECESSARY FOR THE ENGINEER COMPLETE THE INSPECTION OF THE LINE UNDER TEST. DO NOT EXCEED PIPE MANUFACTURERS SUGGESTED TIME DURATION AT THE TEST PRESSURE. IF DEFECTS ARE NOTED, REPAIRS SHALL BE MADE AND THE TEST REPEATED UNTIL ALL PARTS OF THE LINE WITHSTAND THE TEST PRESSURE.

32 APPLY I FAKAGE TEST PRESSURE OF 150 PSI (WATER MAINS) 200 PSI /FIRE MAINS) OR 100 PSI /RECI AIMED WATER MAINS) MAINTAIN PRESSURE AT A MAXIMUM VARIATION OF 5% DURING THE ENTIRE I FAKAGE TEST THE DURATION OF THE LEAKAGE TEST SHALL BE TWO HOURS MINIMUM, AND FOR SUCH ADDITIONAL TIME NECESSARY FOR THE ENGINEER TO COMPLETE INSPECTION OF THE SECTION OF LINE UNDER TES LEAKAGE MEASUREMENTS SHALL NOT BE STARTED UNTIL A CONSTANT TEST PRESSURE HAS BEEN ESTABLISHED. THE LINE LEAKAGE SHALL BE MEASURED BY MEANS OF A WATER METER INSTALLED ON THE SUPPLY SIDE OF THE PRESSURE PUMP.

33. NO LEAKAGE IS ALLOWED IN EXPOSED PIPING, BURIED PIPING WITH FLANGED, THREADED, OR WELDED JOINTS OR BURIED NON-POTABLE PIPING IN CONFLICT WITH POTABLE WATER LINES. 34. TESTED SECTIONS OF BURIED PIPING WITH SLIP-TYPE OR MECHANICAL JOINTS WILL NOT BE ACCEPTED IF IT HAS A LEAKAGE RATE IN EXCESS OF THAT RATE DETERMINED BY THE FORMULA L = SDP/133200 (AWWA

C-600 DUCTILE IRON MAINS), OR L = NDP/7400 (AWWAC-605 - PVC MAIN); WHERE L = MAXIMUM PERMISSIBLE LEAKAGE RATE, IN GALLONS PER HOUR, THROUGHOUT THE ENTIRE LENGTH OF LINE BEING TESTED: S = LENGTH OF LINE TESTED (IN FEET); D = NOMINAL INTERNAL DIAMETER (IN INCHES) OF THE PIPE; N = NUMBER OF JOINTS ALONG LINE BEING TESTED; AND P = THE SQUARE ROOT OF THE ACTUAL PRESSURE IN PSIG ON ALL JOINTS IN THE TESTED PORTION OF THE LINE. THIS ACTUAL PRESSURE SHALL BE DETERMINED BY FINDING THE DIFFERENCE BETWEEN THE AVERAGE ELEVATION OF ALL TESTED PIPE JOINTS AND THE ELEVATION OF THE PRESSURE GAUGE AND ADDING THE DIFFERENCE IN ELEVATION HEAD TO THE AUTHORIZED TEST PRESSURE.

35. ALL APPARENT LEAKS DISCOVERED WITHIN ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER SHALL BE LOCATED AND REPAIRED BY CONTRACTOR, REGARDLESS OF THE TOTAL LINE LEAKAGE RATE.

36. DISINEECT ALL POTABLE WATER LINES, FIRE LINES, VALVES, FITTINGS, HYDRANTS,

37. ALL DISINFECTION WORK SHALL BE ACCEPTABLE TO THE STATE HEALTH AUTHORITY. IF ANY REQUIREMENTS OF THIS SECTION ARE IN CONFLICT WITH REQUIREMENTS OF THE AUTHORITY FOR DISINFECTION, THOSE OF THE AUTHORITY SHALL GOVERN. THE WATER MAIN DISINFECTION AND BACTERIOLOGICAL SAMPLING AND METHODS OF DISINFECTION FOR ALL WATER CONTAINMENT DEVICES AND PIPING SYSTEMS SHALL

FIRE PROTECTION SYSTEMS

1. COMBUSTIBLE CONSTRUCTION CANNOT OCCUR UNTIL PROPER DOCUMENTATION HAS BEEN SUBMITTED TO THE LOCAL FIRE MARSHAL. DOCUMENTATION SHALL SHOW THAT HYDRANTS HAVE BEEN INSTALLED, TESTED, AND ARE IN PROPER WORKING ORDER.

2. INSTALL ALL FIRE LINE PIPING AT A MINIMUM 36 INCHES OF COVER 3. ALL FIRE LINE PIPING FROM POINT OF SERVICE AS DEFINED BY FS 633.021(16) SHALL BE C900 DR 14. THE FIRE LINE SHALL BE PRESSURE TESTED TO 200 PSI FOR A MINIMUM OF TWO HOURS, TESTED IN ACCORDANCE

WITH NEPA 24-9-2

4. THE CONTRACTOR INSTALLING THE UNDERGROUND FIRE PROTECTION PIPING SHALL HOLD A CLASS I, II, OR LEVEL V CERTIFICATION AS ISSUED BY THE STATE OF FLORIDA, AS REQUIRED BY FS 633.021(5).

5. ALL FIRE PROTECTION SPRINKLER SYSTEMS INSTALLED SHALL COMPLY WITH NFPA 13, AND SHALL BE MONITORED BY A COMPANY LISTED AS A CENTRAL STATION

6. HYDRANTS SHALL CONFORM TO AWWA C502 AND SHALL BE FURNISHED COMPLETE WITH WRENCH AND OTHER APPURTENANCES. MANUFACTURERS CERTIFICATION OF COMPLIANCE WITH AWWA C502 AND TESTS LISTED THEREIN WILL BE REQUIRED.

7. ALL HYDRANTS SHALL BE OF BREAKABLE TYPE, WITH THE BREAKABLE SECTION LOCATED SLIGHTLY ABOVE THE FINISH GROUND LINE. HYDRANTS SHALL CONTAIN TWO-TWO AND A HALF INCH (2-112") HOSE CONNECTIONS AND ONE-FOUR AND A HALF INCH (4-1/7) STEAMER CONNECTIONS WITH NATIONAL STANDARD FIRE HOSE COUPLING SCREW THREADS, FIVE AND ONE QUARTER INCH (5-1/4") VALVE OPENING, SIX INCH (6°) DIAMETER MECHANICAL JOINT INLET, ONE AND ONE-HALF INCH (1-1/2°) PENTAGON OPERATING NUT. THE HYDRANTS SHALL OPEN COUNTERCLOCKWISE

8. ALL HYDRANTS SHALL BE PAINTED IN AN APPROVED MANNER WITH THE PRIMER PAINT BEING KOPPER'S "GLAMORTEX" NO. 622 RUST PRIMER AND THE FINISH PAINT SHALL BE TWO COATS OF ENAMEL OR SPECIAL COATING TO COLOR AS REQUIRED BY THE LOCAL FIRE DEPARTMENT 9. BLUE PAVEMENT REFLECTORS (CAT EYES) SHALL BE PLACED IN THE CENTERLINE OF THE DRIVING LANE DIRECTLY IN FRONT OF ALL FIRE HYDRANTS. THERE SHALL BE NO TREES, SHRUBS, OR LANDSCAPING PLANTED

AROUND THE FIRE HYDRANTS OR IN AREAS DESIGNATED AS FIRE LANES. 10.NEW OR RELOCATED FIRE HYDRANTS SHALL BE LOCATED SUCH THAT THE UNDERGROUND DRAIN (WEEP HOLE) IS AT LEAST: THREE FEET FROM ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, RECLAIMED WATER MAIN, OR VACUUM TYPE SANITARY SEWER: SIX FEET FROM ANY EXISTING OR PROPOSED GRAVITY SANITARY SEWER AND WASTEWATER FORCE MAIN: AND TEN FEET FROM ANY ONSITE

SEWAGE TREATMENT AND DISPOSAL SYSTEM SUCH AS SEPTIC TANKS, DRAINFIELDS, AND GREASE TRAPS. ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS DO NOT INCLUDE PACKAGE SEWAGE TREATMENT FACILITIES AND PUBLIC WASTEWATER TREATMENT FACILITIES. 11.THE CONTRACTOR SHALL PROVIDE A POST-CONSTRUCTION FIRE FLOW TEST WITNESSED AND APPROVED BY THE ENGINEER AND THE UTILITY. HYDRANTS SHALL DELIVER A MINIMUM OF 1250 GPM WITH A RESIDUAL

SANITARY SEWER SYSTEMS

PRESSURE OF 20 PSI.

1. THE ENTITY THAT WILL OPERATE AND MAINTAIN THE SEWER SYSTEM SHOWN ON THESE PLANS IS THE CITY OF HOLLYWOOD. THE CONTRACTOR SHALL MEET ALL THE REQUIREMENTS OF THE CITY OF HOLLYWOOD-FLORIDA.

2. PVC SEWER PIPE SHALL BE TYPE PSM PVC PIPE CONFORMING TO ASTM D3034 AND SHALL BE SDR 35 FOR 4" THROUGH 15", AND ASTM F 679, WALL THICKNESS T-1, FOR PIPE 18" THROUGH 27"

3. INSTALL ALL SEWER MAINS AT A MINIMUM 36 INCHES OF COVER.

4. JOINTS SHALL MEET THE REQUIREMENTS OF ASTM D3212 USING RUBBER GASKETS CONFORMING TO ASTM F477. 5. FITTINGS SHALL CONFORM TO THE SAME REQUIREMENTS AS THE PIPE. PROVIDE ADAPTERS AS REQUIRED TO JOIN PVC PIPE TO PIPE, FITTINGS AND EQUIPMENT OF OTHER MATERIALS. SOLVENT CEMENT SHALL BE AS

RECOMMENDED BY THE PIPE MANUFACTURE

6. PVC SEWER PIPE SHALL BE COLOR CODED GREEN, STENCILED "SEWER LINE" (2. LETTERING ON TWO SIDES OF THE PIPE IN AT LEAST THREE AREAS PER PIPE SECTION)

7. INSTALL ADHESIVE IDENTIFICATION TAPE ALONG PIPELINE. TAPE SHALL BE MINIMUM THICKNESS 4 MILS, WIDTH 6 INCHES, LETTER SIZE 1 INCH. TAPE COLOR AND LETTERING SHALL BE "SEWER LINE", BLACK PRINTING ON GREEN BACKGROUND. PLACE TAPE AS FOLLOWS: - 8" PIPE - CENTER ALONG TOP HALF OF PIPE; 10" - 18" PIPE - PLACE ALONG BOTH SIDES OF THE TOP HALF OF PIPE; 20" PIPE AND LARGER - PLACE ON BOTH SIDES OF TOP HALF OF PIPE WITH A THIRD STRIP CENTERED ALONG TOP HALF OF PIPE.

8. INSTALL WARNING TAPE ALONG ALL SEWER PIPELINES. TAPE SHALL BE 6-INCH WIDE VINYL CONTINUOUS TAPE, COLORED GREEN WITH BLACK LETTERING CODED AND WORDED "CAUTION: SEWER BURIED BELOW". INSTALL ALONG PIPELINE, 2 FEET ABOVE PIPE, MINIMUM OF 1 FOOT BELOW GRADE. 9. CONNECTIONS TO EXISTING SEWER SHALL BE CONDUCTED IN SUCH A MANNER THAT THE EXISTING SEWER REMAINS IN OPERATION. PROVIDE BY PASS PUMPING OF EXISTING FLOWS OR COLLECT AND LEGALLY DISPOSE OF EXISTING SEWER FLOW AS NEEDED TO ACCOMMODATE CONSTRUCTION WHILE KEEPING EXISTING SEWER IN SERVIC 10.PRIOR TO INSPECTIONS AND TESTING, CLEAN ALL INSTALLED LINES AND MANHOLES. TEST PROCEDURES SHALL BE APPROVED BY THE ENGINEER. ALL TESTS SHALL BE MADE IN THE PRESENCE OF THE ENGINEER AND UTILITY. NOTIFY THE ENGINEER AND THE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY WORK IS TO BE INSPECTED OR TESTED. 11.PROVIDE ALL EQUIPMENT FOR TESTING. INCREMENTS ON GAGES USED FOR LOW PRESSURE AIR TESTING SHALL BE OF SCALED TO THE NEAREST 0.1 PSI. GAGES, PUMPS, AND HOSES SHALL BE IN GOOD WORKING ORDER WITH NO NOTICEABLE LEAKS. 12.ALL SERVICE LATERALS SHALL BE COMPLETED PRIOR TO TESTING, AND ARE SUBJECT TO THE SAME TESTING REQUIREMENTS AS THE MAIN LINE. 13.PROVIDE LIGHT SOURCE AND MIRRORS FOR LAMPING OF SEWER, ANY SEWER IN WHICH THE DIRECT LIGHT OF A LAMP CANNOT BE VIEWED IN EITHER DIRECTION, FULL CIRCLE, BETWEEN ADJACENT MANHOLES SHALL BE CONSIDERED UNSATISFACTORY, UNLESS THE LINE IS DESIGNED WITH HORIZONTAL DEFLECTIONS, AND SHALL BE REPAIRED BY THE CONTRACTOR WITHOUT ADDITIONAL COMPENSATION. 14.CONDUCT LOW PRESSURE AIR TESTING (4.0 PSI INITIAL PRESSURE) OF INSTALLED SEWER PIPING IN ACCORDANCE WITH ASTM F1417. MAXIMUM ALLOWABLE LEAKAGE IS 0.0015 CUBIC FEET PER

MINUTE PER SQUARE FOOT INTERNAL SUFFACE AREA BEING TESTED. ALLOWABLE AIR PRESSURE DORO DURING THE TEST IS 0.5 PSIG. MINUMURE DESTITUTIE (DURATION) IS: A) 4" PIPE = 1 MIN 53 SEC; B) 6" PIPE = 2 MIN 50 SEC, OR 0.472 X LENGTH OF PIPE TESTED, WHICHEVER IS GREATER; C) 8" PIPE = 3 MIN 47 SEC, OR 0.760 X LENGTH OF PIPE TESTED, WHICHEVER IS GREATER; C) 10" PIPE = 4 MIN 43 SEC. OR 1,187 X LENGTH OF PIPE TESTED, WHICHEVER IS GREATER: E) 12" PIPE = 5 MIN 40 SEC, OR 1,709 X LENGTH OF PIPE TESTED, WHICHEVER IS GREATER. 15.CONDUCT LEAKAGE TESTING OF MANHOLES, PLUG INVERTS AND FILL MANHOLE WITH WATER, ALLOWABLE WATER DROP IN MANHOLE TO BE FIELD DETERMINED BY UTILITY AND ENGINEER. MINIMUM TEST DURATION IS 1 HOUR. 16.CONDUCT DEFLECTION TESTING OF PIPELINE AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS. MAXIMUM ALLOWABLE PIPE DEFLECTION IS 5%. MEASURE DEFLECTION B MANUALLY PULLING A MANDREL THROUGH THE PIPE. THE MINIMUM MANDREL OUTER DIAMETER SHALL BE IN ACCORDANCE WITH THE FOLLOWING: 6" SEWER = 5.45" MANDREL; 8" SEWER = 7.28" MANDREL; 10" SEWER = 9.06" MANDREL; 12" SEWER = 10.79" MANDREL; 15" SEWER = 13.20" MANDREL; 18" SEWER = 16.13" MANDREL; 21" SEWER = 19.00" MANDREL; 24" SEWER = 21.36" MANDREL 27" SEWER = 24.06" MANDREL. 17.DEFLECTION TESTING IS CONSIDERED SATISFACTORY IF THE MANDREL CAN BE PULLED BY HAND THROUGH THE PIPE BEING TESTED. IF THE MANDREL CANNOT BE PULLED THROUGH THE PIPE, REPLACE OR CORRECT THE PIPE AND RETEST UNTIL TESTING IS SATISFACTORY. ANY PIPE REMOVED OR CORRECTED DUE TO FAILING DEFLECTION TESTING SHALL ALSO BE RE-TESTED FOR

PRECAST STRUCTURES AND APPURTENANCES

ALL MANHOLES SHALL BE PRECAST CONSTRUCTION. THE MINIMUM SIZE DIAMETER OF MANHOLES SHALL BE 48" FOR SEWER LINES 21" IN DIAMETER OR LESS. INTEGRALLY CAST STEPS WITHIN PRECAST STRUCTURES ARE NOT ALLOWED.

18.BASES SHALL BE ONE-PIECE PRECAST BASE SECTIONS CONSISTING OF INTEGRALLY CAST SLAB, BOTTOM RING SECTION AND CONCRETE FLOW CHANNELS. BASE SECTIONS SHALL HAVE INTEGRAL INVERTS WITH GASKETS TO MATCH THE PIPE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ALL INVERT ANGLES. PROVIDE OUTLET STUBS WITH JOINTS TO MATCH

THE PIPE. 19.RISERS SHALL BE PRECAST REINFORCED CONCRETE PER ASTM C478, MANUFACTURED USING SULFATE RESISTANT CEMENT (ASTM C150, TYPE II), RISERS SHALL BE 48-INCH DIAMETER UNLESS OTHERWISE INDICATED AND SHALL HAVE A MINIMUM WALL THICKNESS OF 5 INCHES.

20. GASKETS FOR SEATING PRECAST SECTIONS SHALL BE COLD ADHESIVE PREFORMED PLASTIC GASKETS CONFORMING TO FDOT SPECIFICATION 942-2, UNLESS OTHERWISE INDICATED. 21. UNLESS OTHERWISE INDICATED, CONE TOP SECTIONS SHALL BE PRECAST, ECCENTRIC TYPE WITH 24-INCH DIAMETER TOP OPENING CONFORMING TO ASTM C478. PROVIDE 8-INCH MINIMUM THICKNESS FLAT SLAB TOPS WITH ECCENTRIC 24 INCH DIAMETER OPENING, UNLESS OTHERWISE INDICATED. 22. PROVIDE A FLEXIBLE WATERTIGHT SEAL OF THE PIPE TO THE MANHOLE. CONNECTION OF CONCRETE PIPE TO THE MANHOLE SHALL BE MADE WITH NON-SHRINK METALLIC GROUT. CONNECTION OF DUCTILE IRON OR PVC PIPE TO THE MANHOLE SHALL PROVIDE A WATERTIGHT CONNECTION PER ASTM C923. WHERE CONNECTORS ARE USED, THEY SHALL BE INSTALLED IN THE MANHOLE WALL BY ACTIVATING THE EXPANDING MECHANISM IN STRICT ACCORDANCE WITH THE RECOMMENDATION OF THE CONNECTOR MANUFACTURER. THE USE OF ADHESIVES OR LUBRICANTS FOR

INSTALLATION OF RUBBER CONNECTORS IS PROHIBITED. 23. FRAMES AND COVERS SHALL BE GREY IRON PER ASTM A48, CLASS 30B AND SHALL BE US FOUNDRY TYPE 227AS, TRAFFIC BEARING (AASHTO H-20 LOADING), UNLESS OTHERWISE NOTED IN THE DRAWINGS. CASTINGS SHALL BE SMOOTH, CLEAN, FREE FROM BLISTERS, BLOWHOLES, AND SHRINKAGE. RAISED LETTERING ON COVERS SHALL BE "STORM", "SEWER", OR AS DETAILED ON THE

24. PROVIDE CAST IRON INLETS, FRAMES, AND GRATES IN ACCORDANCE WITH DETAILS ON THE DRAWINGS. ALL FRAMES AND INLET GRATES SHALL BE PRODUCTS OF U.S. FOUNDRY & MANUFACTURING CORPORATION, OR EQUAL 25. ALL INLET GRATES SHALL BE SECURED BY CHAIN AND EYEBOLT TO THE TOP OF THE STRUCTURE.

26. MANHOLE COATINGS AND FINISHES SHALL BE:

A. SANITARY SEWER MANHOLE INTERIOR - BITUMINOUS EPDXY COATING, MINIMUM DRY FILM THICKNESS = 16 MILS. B. INTERIOR OF MANHOLES WHICH RECEIVE FORCE MAIN DISCHARGE - INTEGRALLY ATTACHED INTERIOR LINER, FULL HEIGHT, FIBERGLASS LINER. LINER THICKNESS TO BE IN ACCORDANCE WITH THE DRAWINGS.

C. EXTERIOR - BITUMINOUS EPDXY COATING, MINIMUM DRY FILM THICKNESS = 16 MILS. 11.AS-BUILT INFORMATION SHALL INCLUDE ALL RIM, TOP AND INVERT ELEVATIONS FOR ALL PRECAST STRUCTURES.

STORM SEWER SYSTEMS

1. ALL STORM SEWER PIPE SHALL BE REINFORCED CONCRETE PIPE (RCP) UNLESS OTHERWISE INDICATED ON THE DRAWINGS. ROUND CONCRETE PIPE SHALL COMPLY WITH ASTM C76. ELLIPTICAL CONCRETE PIPE SHALL COMPLY WITH ASTM C507. PIPE JOINTS AND 0-RING GASKETS SHALL COMPLY ASTM C443. MINIMUM COVER OVER THE PIPE, INCLUDING COVER OVER THE BELL OF THE PIPE WHERE APPLICABLE, SHALL BE 30 INCHES. 2. RCP PIPE SHALL NOT BE SHIPPED FROM MANUFACTURER UNTIL THE COMPRESSIVE STRENGTH OF THE PIPE HAS REACHED 4000 PSI AND A MINIMUM OF 5 DAYS HAVE PASSED SINCE THE

MANUFACTURING OR REPAIR OF THE PIPE HAS BEEN COMPLETED. 3. CORRUGATED POLYETHYLENE (PE) PIPE AND FITTINGS SHALL BE HIGH DENSITY, IN ACCORDANCE WITH ASTM D3350, CELL CLASSIFICATION 324420C (4"-10") OR CELL CLASSIFICATION 335420C (17-36"). PIPE 4*-10" SHALL COMPLY WITH AASHTO M252, TYPE S. PIPE 12*-36" SHALL COMPLY WITH AASHTO M294, TYPE S. BELL JOINTS FOR 4*-10" PIPE SHALL BE PUSH-ON SLEEVE. BELL JOINTS NOR 12"-36" PIPE SHALL BE INTEGRALLY FORMED ON PIPE. GASKETS SHALL BE INSTALLED BY PIPE MANUFACTURER AND SHALL COMPLY WITH ASTM D1056, GRADE 242. FITTINGS SHALL COMPLY WITH AASHTO M294. 4. UNDERDRAIN PIPE SHALL BE PERFORATED POLYVINYL CHLORIDE PIPE IN ACCORDANCE WITH ASTM F758. FILTER FABRIC UNDERDRAIN SOCK SHALL BE TYPE D-3 IN ACCORDANCE WITH FDOT

INDEX NO. 199. 5. ALL PIPE JOINTS SHALL BE WRAPPED WITH FILTER FABRIC. FILTER FABRIC SHALL BE IN ACCORDANCE WITH FDOT INDEX NO. 199, TYPE D-3, A.O.S. 70-100. INSTALL IN ACCORDANCE WITH FDOT INDEX NO. 280. PROVIDE MINIMUM 12" OVERLAP. 6. INSTALL POLYETHYLENE PIPE IN ACCORDANCE WITH ASTM D2321. BACKFILL AND COMPACT EVENLY ON EACH SIDE TO PREVENT DISPLACEMENT. MINIMUM COVER OVER POLYETHYLENE PIPE

SHALL BE AS FOLLOWS: A) PIPE UNDER FLEXIBLE PAVEMENT, RIGID PAVEMENT, OR UNPAVED AREAS WHERE BEDDING IS SUITABLE SOILS AS DEFINED IN THE GENERAL NOTES: MINIMUM COVER SHALL BE 36 INCHES OR ONE PIPE DIAMETER, WHICHEVER IS GREATER; B) PIPE UNDER FLEXIBLE PAVEMENT, RIGID PAVEMENT, OR UNPAVED AREAS WHERE BEDDING IS MANUFACTURED AGGREGATES CLASS 1A OR 1B AS DEFINED IN ASTM D2321: MINIMUM COVER SHALL BE 30 INCHES OR ONE PIPE DIAMETER, WHICHEVER IS GREATER. 7. INSTALL UNDERDRAINS IN ACCORDANCE WITH FDOT SPECIFICATION SECTION 440. INSTALL CLEANOUTS AS SHOWN ON THE DRAWING

8. PRIOR TO INSPECTIONS AND TESTING, CLEAN ALL INSTALLED LINES AND STRUCTURES. 9. ALL STORM PIPE SHALL BE SUBJECTED TO LEAKAGE TESTING. WHEN THE GROUND WATER LEVEL IS ABOVE THE TOP OF THE PIPE, AN INFILTRATION TEST SHALL BE PERFORMED BY SEALING OFF

A LENGTH OF PIPE AND MEASURING THE DEPTH OF FLOW OVER A MEASURING WEIR, OR BY PUMPING THE INFILTRATED WATER INTO CONTAINERS FOR MEASUREMENT. TESTS SHALL BE CONDUCTED FOR A MINIMUM OF FOUR HOURS. INFILTRATION LEAKAGE SHALL NOT EXCEED 150 GALLONS PER 24 HOURS, PER INCH DIAMETER, PER MILE OF PIPE. WHEN THE GROUND WATER LEVEL IS BELOW THE TOP OF THE PIPE. THE PIPE SHALL BE TESTED FOR LEAKAGE BY EXFILTRATION. EXFILTRATION LEAKAGE TEST SHALL CONSIST OF ISOLATING THE PARTICULAR SECTION. FILING WITH WATER TO A POINT 4 FEET ABOVE THE TOP OF THE PIPE AT THE UPPER MANHOLE OR INLET, AND ALLOWING IT TO STAND NOT LESS THAN FOUR HOURS. THE SECTION SHALL THEN BE REFILLED WITH WATER UP TO THE ORIGINAL LEVEL AND AFTER TWO HOURS THE DROP IN WATER SURFACE SHALL BE MEASURED. THE COMPUTED LEAKAGE SHALL NOT EXCEED 150 GALLONS PER INCH DIAMETER, PER 24 HOURS, PER MILE OF PIPE.

PAVING, SIDEWALKS, AND CURBING

1. MATERIALS AND CONSTRUCTION METHODS FOR THE ROADWAY AND PAVING CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2013 EDITION 2. ROADWAY PAVING, BASE, AND SUBGRADE THICKNESSES SHALL BE IN ACCORDANCE WITH DETAILS ON THESE DRAWINGS. MATERIAL STABILITY AND DENSITY REQUIREMENTS ARE AS FOLLOWS:

A. TYPE S ASPHALTIC CONCRETE: MINIMUM STABILITY 1500 LBS, COMPACTED TO A MINIMUM OF 95% OF THE MARSHALL DESIGN DENSITY. FOR OFFSITE PAVEMENT USE TYPE SP PAVEMENT PER THE FDOT STANDARDS AND SPECIFICATION

B. LIMEROCK BASE: MINIMUM LBR OF 100, PLACED IN 6" MAXIMUM LIFTS, COMPACTED TO A MINIMUM DENSITY OF 98% OF THE MODIFIED PROCTOR DRY DENSITY (AASTHO T-180). CONTRACTOR MAY SUBSTITUTE ASPHALT BASE COURSE TYPE 3 (MIN. STABILITY OF 1000 LBS) AT NO ADDITIONAL COST, PROVIDED STRUCTURAL NUMBER EQUALS OR EXCEEDS THAT OF THE SPECIFIED C. SUBGRADE: STABILIZE TO A MIN. LBR OF 40, COMPACT TO A MINIMUM DENSITY OF 98% OF THE MODIFIED PROCTOR DRY DENSITY (AASTHO T-180). CONTRACTOR MAY SUBSTITUTE LIMEROCK

SUBGRADE (MIN. LBR OF 100) OR CONTROLLED LOW STRENGTH MATERIAL ("FLOWABLE FILL"), F'c (28 DAY) = 100-125 PSI AT NO ADDITIONAL COST, PROVIDED STRUCTURAL NUMBER EQUALS OR EXCEEDS THAT OF THE SPECIFIED SUBGRADE. 3. SIDEWALKS ARE TO BE CONSTRUCTED IN THE AREAS AS SHOWN ON THE CONSTRUCTION PLANS. THE SIDEWALK SHALL BE CONSTRUCTED OF 4" OF CONCRETE WITH A 28-DAY COMPRESSION STRENGTH OF 2500 PSI. JOINTS SHALL BE EITHER TOOLED OR SAW CUT AT A DISTANCE OF 10'. HANDICAPPED RAMPS SHALL BE PROVIDED AT ALL INTERSECTIONS AND SHALL BE IN

ACCORDANCE WITH THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION, LATEST EDITION. 4. CURBING SHALL BE CONSTRUCTED WHERE NOTED ON THE CONSTRUCTION PLANS. CONCRETE FOR CURBS SHALL BE FDOT CLASS *1* CONCRETE WITH A 28-DAY COMPRESSION STRENGTH OF 2500 PSI. ALL CURBS SHALL HAVE SAW CUT CONTRACTION JOINTS AND SHALL BE CONSTRUCTED AT INTERVALS NOT TO EXCEED 10'-0" ON CENTER. CONSTRUCTION OF CURBS SHALL BE IN CONFORMANCE WITH FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION) SECTION 520 AND DETAILS PROVIDED ON THE CONSTRUCTION

5. FIELD COMPACTION DENSITY, STABILITY, AND THICKNESS TESTING FREQUENCIES OF SUB-BASE, BASE, AND ASPHALT SHALL BE TESTED ONCE EVERY 300 LINEAR FEET OF PAVING PER 24-FT WIDE STRIP, STAGGERED LEFT, CENTER AND RIGHT OF CENTERLINE. WHERE LESS THAN 300 LINEAR FEET OF SUB-BASE, BASE, AND ASPHALT IS PLACED IN ONE DAY, PROVIDE MIN. OF ONE TEST FOR EACH PER DAY'S CONSTRUCTION AT A LOCATION DESIGNATED BY THE ENGINEER. ASPHALT EXTRACTION GRADATION SHALL BE TESTED FROM GRAB SAMPLES COLLECTED ONCE EVERY 1800 SQUARE YARDS OF ASPHALT DELIVERED TO THE SITE (OR A MINIMUM OF ONCE PER DAY).

SIGNS AND PAVEMENT MARKINGS

1. ALL SIGNS AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND THE LATEST IMPLEMENTED EDITION OF FDOT ROADWAY AND TRAFFIC DESIGN STANDARDS. STANDARD INDEX NO. 11200, 11860, 11862, 11863, 11864, 11865, 17302, 17344, 17346, 17349, AND 17355 APPLY. GENERALLY, ALL MARKINGS SHALL CONFORM TO THE FOLLOWING: 6" EDGE LINES, 6" LANE LINES, 6" SINGLE CENTERLINES, AND 6" DOUBLE LINE PATTERNS, UNLESS OTHERWISE NOTED ON THE PLANS. 2 ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC WITH RAISED PAVEMENT MARKERS (TYPE 911 - 4" x 4") RAISED PAVEMENT MARKERS ARE TO BE INSTALLED IN ACCORDANCE WITH THESE

PLANS AND FDOT INDEX NO. 17352.

3. PARKING STALL PAVEMENT MARKINGS SHALL BE PAINTED. PAINT SHALL MEET THE REQUIREMENTS OF FDOT SPECIFICATION SECTION 971, NON-REFLECTIVE WHITE TRAFFIC PAINT. 4. ALL ROADWAY TRAFFIC SIGNS SHALL BE MANUFACTURED USING HIGH INTENSITY RETROREFLECTIVE MATERIALS. THE BACK OF ALL FINISHED PANELS SHALL BE STENCILED WITH THE DATE OF FABRICATION, THE FABRICATOR'S INITIALS, AND THE NAME OF THE SHEETING IN THREE-INCH LETTERS.

5. INTERNAL SITE TRAFFIC SIGNS ARE NOT REQUIRED TO BE RETROREFLECTIVE.

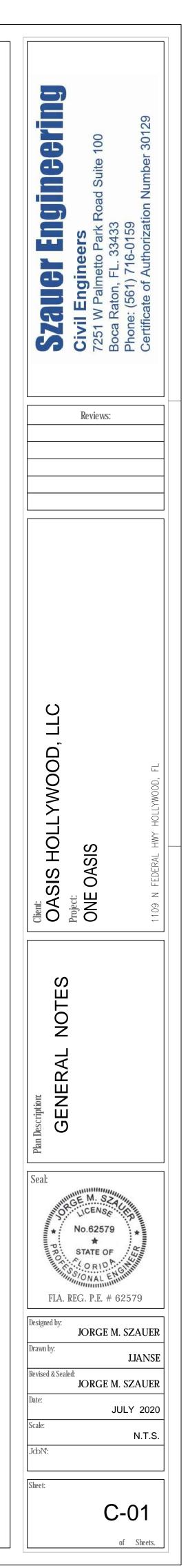
6. THE CONTRACTOR SHALL VERIFY THE REQUIRED LENGTH OF THE SIGN COLUMN SUPPORTS IN THE FIELD PRIOR TO FABRICATION 7. ALL PAVEMENT MARKINGS REQUIRE LAYOUT APPROVAL IN THE FIELD BY THE ENGINEER PRIOR TO INSTALLATION

8. PRIOR TO FINAL PAVEMENT MARKING INSTALLATION, A TWO WEEK CURE TIME OF THE ASPHALT IS REQUIRED.

PAVING TIMING REQUIREMENTS

1. INSTALL SUBGRADE AND BASE COURSE MATERIALS WITHIN 48 HOURS OF THE REMOVAUOPEN CUTTING OF EXISTING PAVEMENT CONSISTING OF STREETS, DRIVEWAYS, OR SIDEWALK. INSTALL FINAL SURFACE COURSES WITHIN 14 DAYS AFTER REMOVAL OF EXISTING PAVEME

2. AREAS TO RECEIVE ASPHALT SHALL RECEIVE EROSION CONTROL MEASURES NO LATER THAN 48 HOURS AFTER ACCEPTANCE OF BASE COURSE. TEMPORARY EROSION CONTROL CONSISTS OF PLACEMENT OF A BITUMINOUS PRIME COAT AND SANDING THE SURFACE. PERMANENT EROSION CONTROL CONSISTS OF PLACEMENT OF THE STRUCTURAL COURSE. 3. AREAS TO RECEIVE CONCRETE PAVING SHALL BE EITHER PROTECTED WITH A LAYER OF FDOT COARSE AGGREGATE MATERIAL OR SHALL BE PAVED WITHIN 48 HOURS OF ACCEPTANCE OF THE SUBGRADE.



DEMOLITION NOTES

- 1. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR, SUPERVISION, AND EQUIPMENT REQUIRED FOR THE ORDERLY DEMOLITION AND REMOVAL OF EXISTING STRUCTURES, PAVEMENT AND UTILITIES AS SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN
- 2. DEMOLITION SHALL BE CONDUCTED AS SHOWN ON CONSTRUCTION DRAWINGS AND SHALL MEET APPLICABLE FEDERAL, STATE AND LOCAL CODES AND REGULATIONS
- 3. THE CONTRACTOR SHALL COORDINATE DEMOLITION OF UTILITIES WITH UTILITY COMPANIES, GIVING THEM NOTICE OF DESTRUCTION AND REMOVAL OF SERVICE LINES AND CAPPING LINES WHEN NECESSARY.
- 4. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THIS PLAN HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. PRIOR TO THE START OF ANY DEMOLITION ACTIVITY, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES FOR ON-SITE LOCATIONS OF EXISTING UTILITIES.
- 5. THE CONTRACTOR IS REQUIRED TO FAMILIARIZE HIMSELF WITH THE STRUCTURES TO BE DEMOLISHED. A BRIEF DESCRIPTION OF THE STRUCTURES IS INCLUDED FOR THE CONTRACTOR'S CONVENIENCE ONLY.
- 6. THE DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING: PAVEMENTS, SIGNS, CURBS, UTILITIES, SIDEWALKS, TREES, BUILDING AND MISCELLANEOUS APPURTENANCES. UTILITY DEMOLITION INCLUDES ABOVE GROUND AND UNDERGROUND UTILITIES.
- 7. THE CONTRACTOR SHALL PRESERVE ANY BENCHMARKS LOCATED ON THE SITE.
- 8. PROVIDE ADEQUATE PROTECTION FOR PERSONS AND PROPERTY AT ALL TIMES. EXECUTE THE WORK IN A MANNER TO AVOID HAZARDS TO PERSONS AND PROPERTY AND PREVENT INTERFERENCE WITH THE USE OF AND ACCESS TO ADJACENT BUILDINGS. STREETS AND SIDEWALKS SHALL NOT BE BLOCKED BY DEBRIS AND EQUIPMENT.
- 9. WET DOWN DEBRIS DURING DEMOLITION AND LOADING OPERATIONS TO PREVENT THE SPREAD OF DUST.
- 10. CONTRACTOR MUST STOP OPERATION AND NOTIFY THE OWNER FOR PROPER DIRECTION IF ANY ENVIRONMENTAL OR HEALTH RELATED CONTAMINATE IS ENCOUNTERED DURING THE **DEMOLITION/EXCAVATION PROCESS.**

10. DISPOSAL

A. THE CONTRACTOR IS RESPONSIBLE FOR THE DEMOLITION,

REMOVAL, AND DISPOSING IN A LOCATION APPROVED BY ALL GOVERNING AUTHORITIES, OF ALL STRUCTURES, PARKING, DRIVES, DRAINAGE, STRUCTURES, UTILITIES, ETC., SUCH THAT THE IMPROVEMENTS SHOWN ON THE PLANS CAN BE CONSTRUCTED. ALL FACILITIES TO BE REMOVED SHALL BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACT FILL MATERIAL.

B. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL DEBRIS FROM THE SITE AND DISPOSING OF THE DEBRIS IN A LAWFUL MANNER. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR DEMOLITION AND DISPOSAL.

12. CONTINUOUS ACCESS SHALL BE MAINTAINED FOR THE SURROUNDING BUILDINGS AT ALL TIMES DURING DEMOLITION OF THE EXISTING FACILITIES AND THE CONSTRUCTION OF THE NEW DEVELOPMENT

13. PERMITTING: IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ANY REQUIRED PERMITTING FOR DEMOLITION FROM RESPONSIBLE REGULATORY AGENCIES AND FULLY ACKNOWLEDGE AND COMPLY WITH ALL **REQUIREMENTS PRIOR TO COMMENCING DEMOLITION WORK.**

14. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE THE EXTENT OF DEMOLITION REQUIRED IN ORDER TO PERFORM THE CONTRACT WORK FOR THIS PROJECT. THE CONTRACTOR SHALL CONDUCT SITE VISITS AND SHALL EXAMINE ALL OF THE INFORMATION WITHIN THESE DOCUMENTS: ALL DISCREPANCIES AND/OR OMISSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO BID SUBMITTAL.

15. PRIOR TO DEMOLITION OCCURRING, ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED.

16. THE SITE SHALL BE LEFT CLEAN AFTER DEMOLITION WORK AND BE READY FOR FILLING AND COMPACTION OPERATIONS.

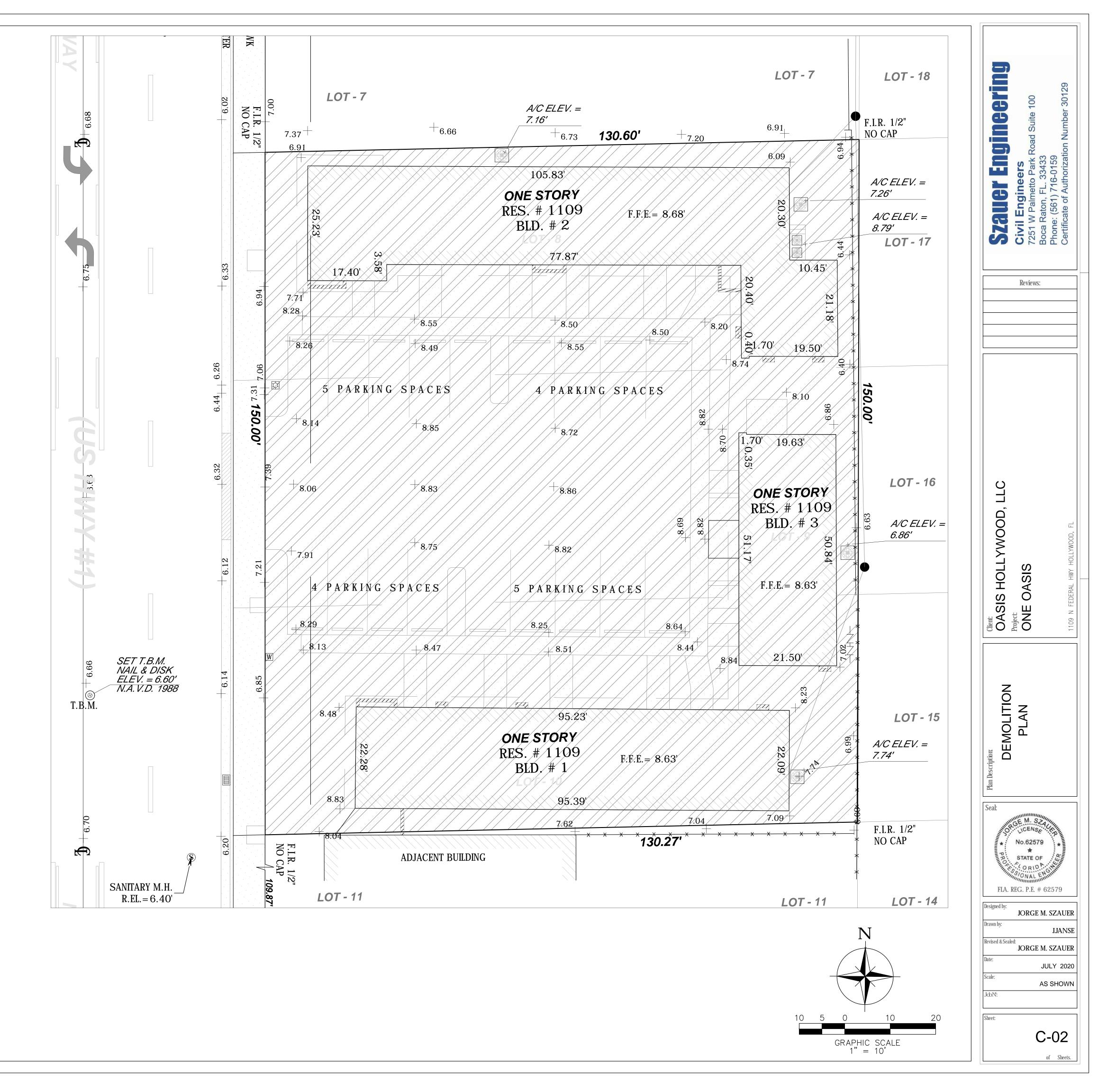
GENERAL NOTES:

- 1. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE DEMOLITION OF EXISTING UTILITIES. UTILITY DEMOLITION AND CONSTRUCTION OF NEW LINES (SEWER, WATER, STORM, ETC.) MUST BE COORDINATED WITH THE OWNER, SURROUNDING BUILDINGS AND HOUSES (IF NECESSARY), UTILITY COMPANIES AND THE GOVERNING AUTHORITIES SO THAT DISRUPTION OF SERVICES WILL BE MINIMIZED.
- 2. FOR TREE REMOVAL REFER TO TREE REMOVAL PLAN

LEGEND:

----- PROPERTY LINE

TO BE DEMOLISHED



GENERAL EROSION & SEDIMENTATION CONTROL NOTES

- A. CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES AS REQUIRED BY THIS STORM WATER POLLUTION PREVENTION PLAN. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST OF OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
- B. BEST MANAGEMENT PRACTICES (BMP'S) AND CONTROLS SHALL CONFORM TO FEDERAL, STATE, OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE, AS APPLICABLE CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY PERMITTING AGENCY OR OWNER.
- C. SITE MAP MUST CLEARLY DELINEATE ALL STATE WATERS. PERMITS FOR ANY CONSTRUCTION ACTIVITY IMPACTING STATE WATERS OR REGULATED WETLANDS MUST BE MAINTAINED ON SITE AT ALL TIMES.
- D. CONTRACTOR TO LIMIT DISTURBANCE OF SITE IN STRICT ACCORDANCE WITH EROSION CONTROL SEQUENCING SHOWN ON THIS PLAN, OR AS REQUIRED BY THE APPLICABLE GENERAL PERMIT. NO UNNECESSARY OR IMPROPERLY SEQUENCED CLEARING AND / OR GRADING SHALL BE PERMITTED.
- E. GENERAL CONTRACTOR SHALL DENOTE ON PLAN THE TEMPORARY PARKING AND STORAGE AREA WHICH SHALL ALSO BE USED AS THE EQUIPMENT MAINTENANCE AND CLEANING AREA, EMPLOYEE PARKING AREA, AND AREA FOR LOCATING PORTABLE FACILITIES, OFFICE TRAILERS, AND TOILET FACILITIES. CONTRACTOR SHALL CONSTRUCT TEMPORARY BERM ON DOWNSTREAM SIDES.
- F. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.
- G. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.
- H. DUST ON THE SITE SHALL BE MINIMIZED. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION **OPERATIONS IS PROHIBITED.**
- RUBBISH , TRASH , GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGHOUT THE ACTION OF WIND OR STORM WATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
- ALL DENUDED I BARE AREAS THAT WILL BE INACTIVE FOR 7 DAYS OR MORE, MUST BE STABILIZED IMMEDIATELY UPON COMPLETION OF MOST RECENT GRADING ACTIVITY , WITH THE USE OF FAST-GERMINATING ANNUAL GRASS / GRAIN VARIETIES, STRAW / HAY MULCH WOOD CELLULOSE FIBERS , TACKIFIERS, NETTING OR BLANKETS.
- K. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE PERMANENTLY STABILIZED AS SHOWN ON THE PLANS. THESE AREAS SHALL BE SEEDED. SODDED, AND / OR VEGETATED IMMEDIATELY, AND NO LATER THAN 7 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS. REFER TO THE GRADING PLAN AND / OR LANDSCAPE PLAN.
- L. IF THE ACTION OF VEHICLES TRAVELING OVER THE GRAVEL CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO PREVENT TRACKING OF DIRT, DUST OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE ONLY USE INGRESS / EGRESS LOCATIONS AS PROVIDED
- M. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
- N. CONTRACTOR OR SUBCONTRACTORS WILL BE RESPONSIBLE FOR REMOVING SEDIMENT IN THE DETENTION POND AND ANY SEDIMENT THAT MAY HAVE COLLECTED IN THE STORM SEWER DRAINAGE SYSTEMS IN CONJUNCTION WITH THE STABILIZATION OF THE SITE.
- 0. 0N-SITE AND OFFSITE SOIL STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION THROUGH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES. STOCKPILE AND BORROW AREA LOCATIONS SHALL BE NOTED ON THE SITE MAP AND PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS.
- P. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.
- Q. DUE TO THE GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION AND SEDIMENT CONTROL MEASURES (SILT FENCES, ETC.) TO PREVENT EROSION AND POLLUTANT DISCHARGE.
- R. GENERAL CONTRACTOR IS TO DESIGNATE / IDENTIFY AREAS ON THE SITE MAPS, INSIDE OF THE LIMITS OF DISTURBANCE, FOR WASTE DISPOSAL AND DELIVERY AND MATERIAL STORAGE.
- S. WHEN INSTALLATION OF SILT FENCE IS PERFORMED, THE CONTRACTOR SHALL STABILIZE THE DISTURBED AREA ALONG THE DOWNWARD SLOPE BY SEEDING OR MULCHING AS CONDITIONS WARRANT.

BMP MAINTENANCE EROSION NOTES

- 1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.
- 2. ALL SEEDED \ SODDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED \ RESODDED AS NEEDED.
- 3. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.
- 4. THE CONSTRUCTION EXITS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION EXITS AS CONDITIONS DEMAND.
- 5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AREA AS CONDITIONS DEMAND.
- 6. OUTLET STRUCTURES SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.
- 7. PRIOR TO LEAVING THE SITE, ALL VEHICLES SHALL BE CLEANED OF DEBRIS. AND DEBRIS AND I OR SEDIMENT REACHING THE PUBLIC STREET SHALL BE CLEANED IMMEDIATELY BY A METHOD OTHER THAN FLUSHING.

WASHING AREAS

VEHICLES SUCH AS CEMENT OR DUMP TRUCKS AND OTHER CONSTRUCTION EQUIPMENT SHOULD NOT BE WASHED AT LOCATIONS WHERE THE RUNOFF WILL FLOW DIRECTLY INTO A WATERCOURSE OR STORM WATER CONVEYANCE SYSTEM. SPECIAL AREAS SHOULD BE DESIGNATED FOR WASHING VEHICLES. THESE AREAS SHOULD BE LOCATED WHERE THE WASH WATER WILL SPREAD OUT AND EVAPORATE OR INFILTRATE DIRECTLY INTO THE GROUND, OR WHERE RUNOFF CAN BE COLLECTED IN A TEMPORARY HOLDING OR SEEPAGE BASIN. WASH AREAS SHOULD HAVE GRAVEL BASES TO MINIMIZE MUD GENERATION.

SYMBOLS LEGEND

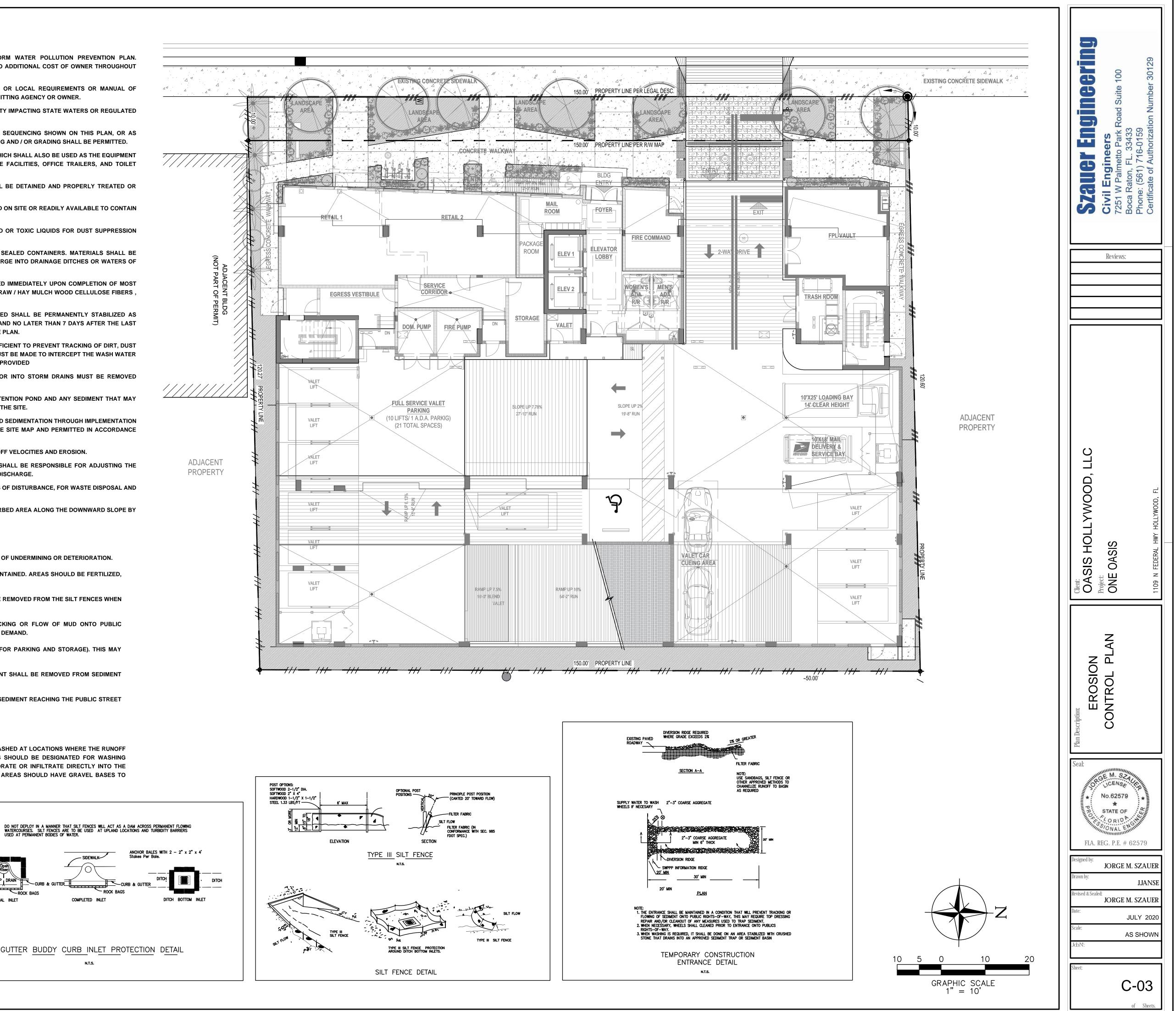
----- PROPERTY LINE/LIMITS OF DISTURBANCE

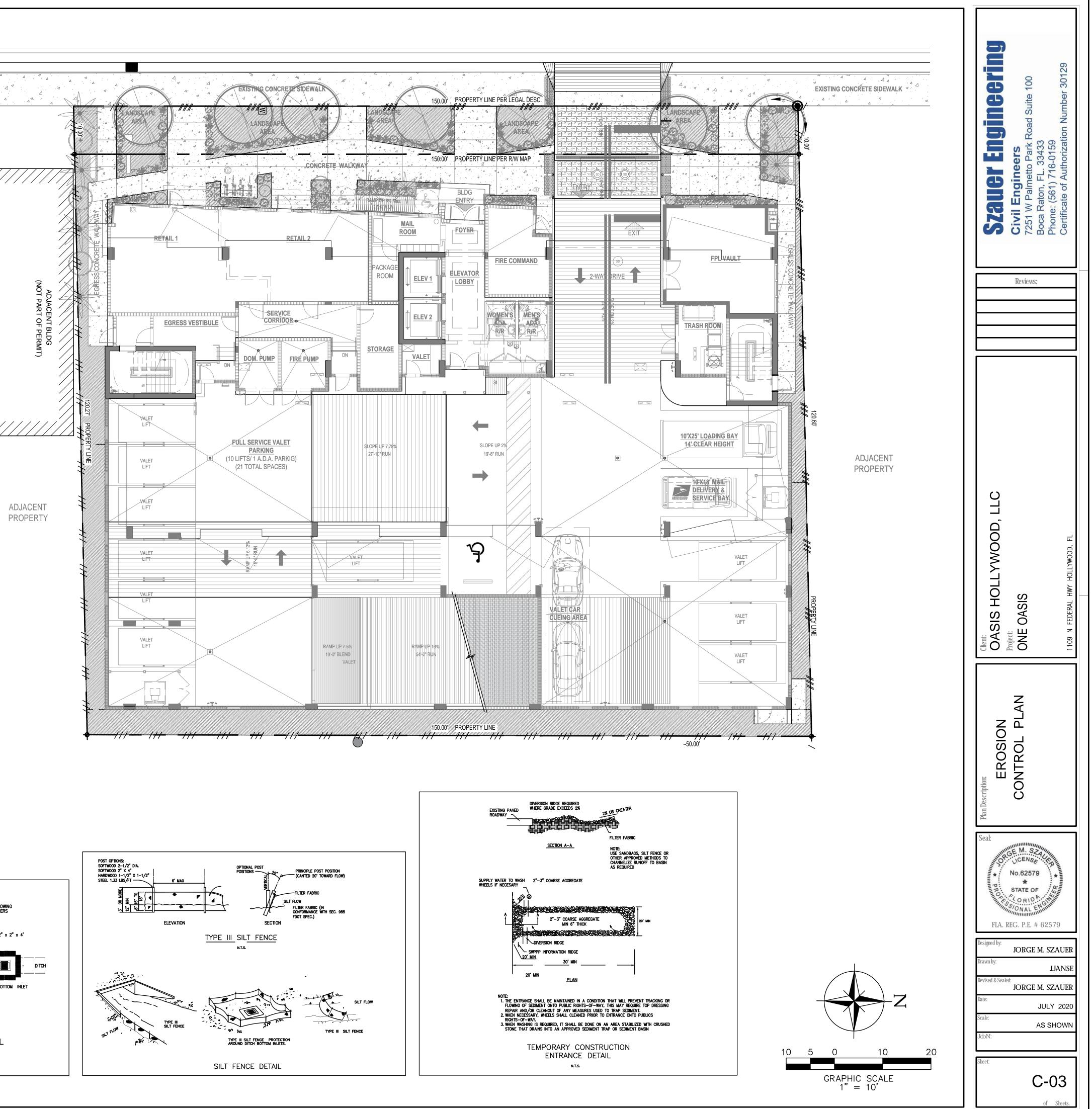
PROPOSED SILT FENCE

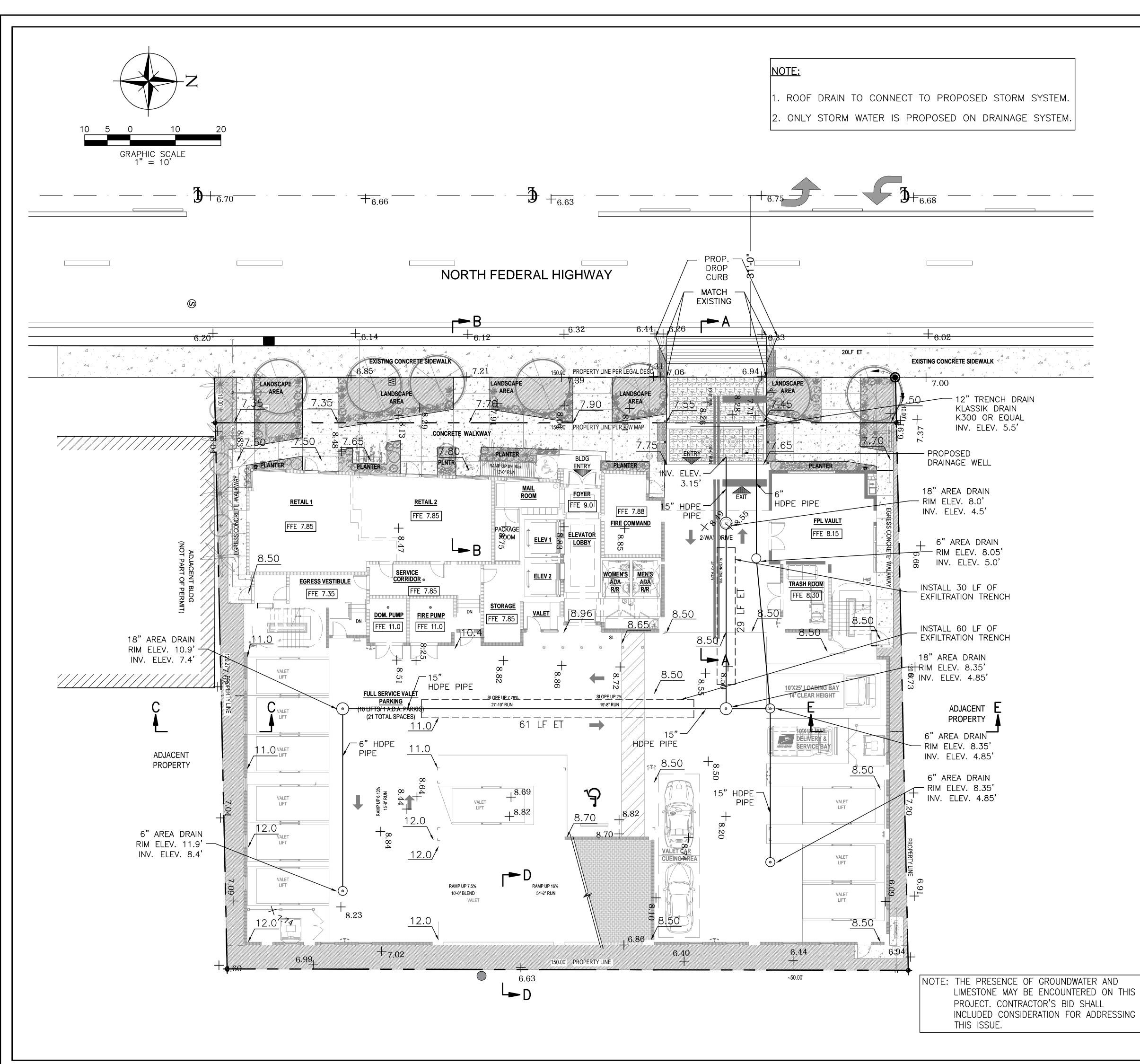
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		-CURB & GUTTE <u>R</u>
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GUTTER BUDDY CURB INLET PROTECTION DETAIL N.T.S.







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MAINTENANCE OF EROSION CONTROL MEASURES IS OF PARAMOUNT IMPORTANCE TO ONE OASIS. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL EROSION CONTROL MEASURES SHOWN ON THE DRAWINGS. THE EROSION CONTROL SYSTEM DESCRIBED WITHIN THE CONSTRUCTION DOCUMENTS SHOULD BE CONSIDERED TO REPRESENT THE MINIMUM ACCEPTABLE STANDARDS FOR THIS PROJECT. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED DEPENDENT UPON THE STAGE OF CONSTRUCTION. THE SEVERITY OF THE RAINFALL EVENTS AND/OR AS DEEMED NECESSARY AS A RESULT OF ON-SITE INSPECTIONS BY THE OWNER, THEIR REPRESENTATIVES OR THE JURISDICTIONAL AUTHORITIES. THESE ADDITIONAL MEASURES SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER. IT IS THE CONTRACTOR'S ULTIMATE RESPONSIBILITY TO ASSURE THAT THE STORM WATER DISCHARGE FROM THE SITES DOES NOT EXCEED THE TOLERANCES ESTABLISHED BY ANY OF THE JURISDICTIONAL AUTHORITIES. REFERENCE THE EROSION CONTROL PLAN AND DETAILS

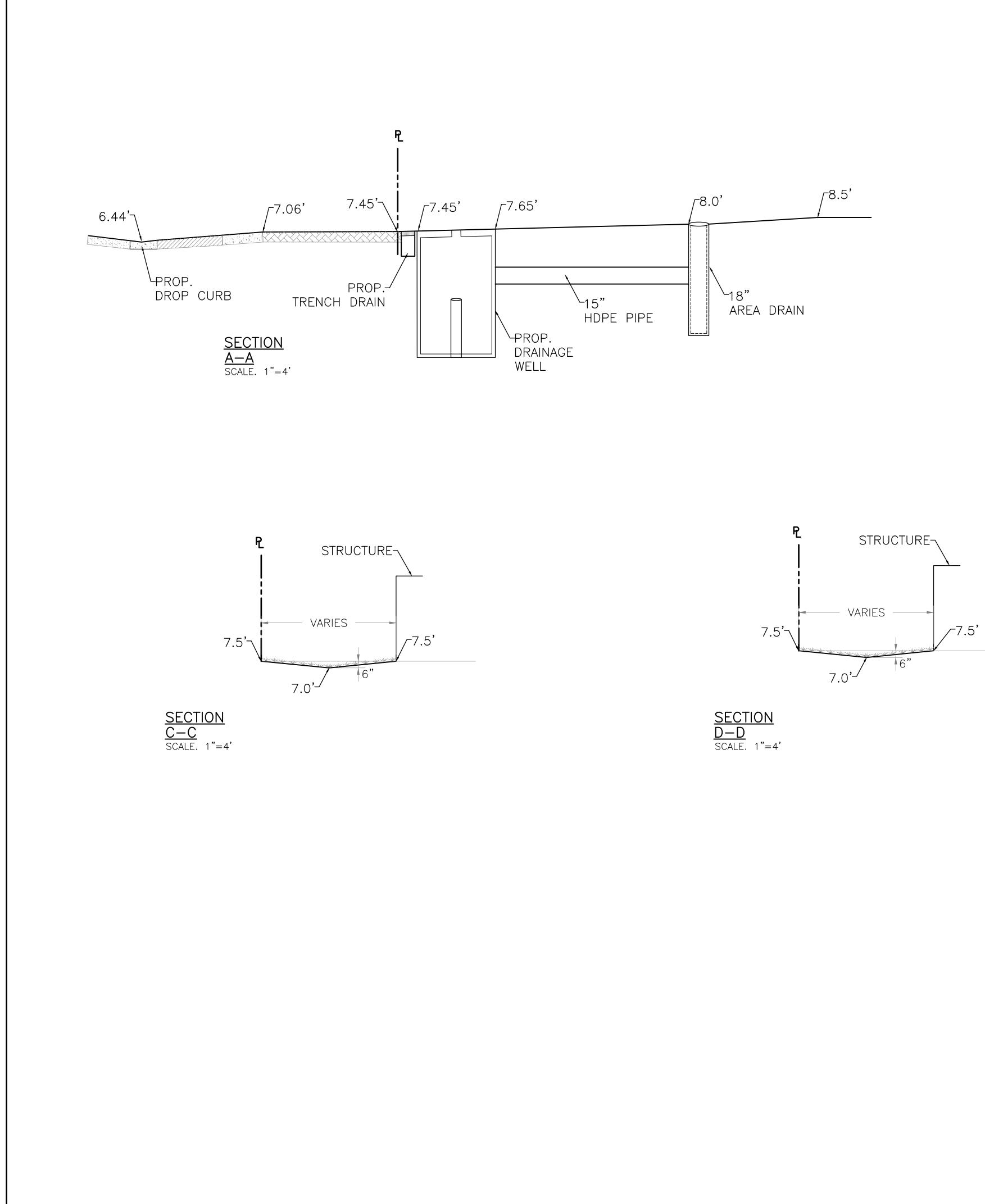
PROPOSED STORM SYSTEMS NOTES

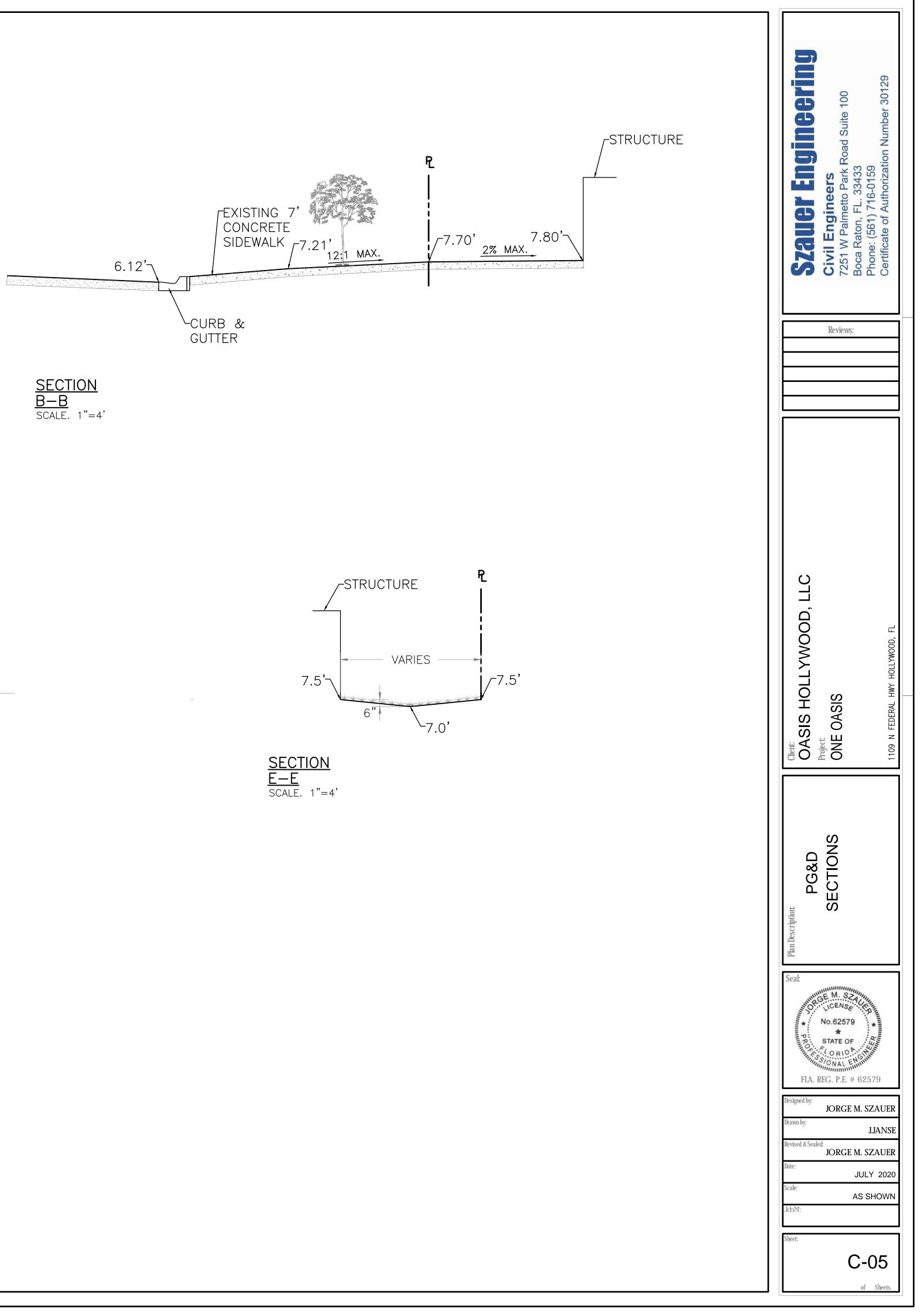
- 1. ALL STRUCTURE INVERTS SHALL BE CONSTRUCTED PER F.D.O.T. INDEX 201 UNLESS OTHERWISE NOTED.
- 2.ALL DRAINAGE STRUCTURES, INCLUDING CLEAN-OUTS, SHALL BE INSTALLED WITH TRAFFIC BEARING GRATES, FRAMES, TOPS, RINGS AND COVERS, ETC, AS APPLICABLE.
- 3.ALL PROPOSED INLET GRATES SHALL BE RETICULINES STEEL.
- 4.SEE LANDSCAPE PLAN FOR SOD/SEED & MULCH LIMITS.
- 5.HDPE PIPE TO BE DOUBLE WALL-SMOOTH INTERIOR.

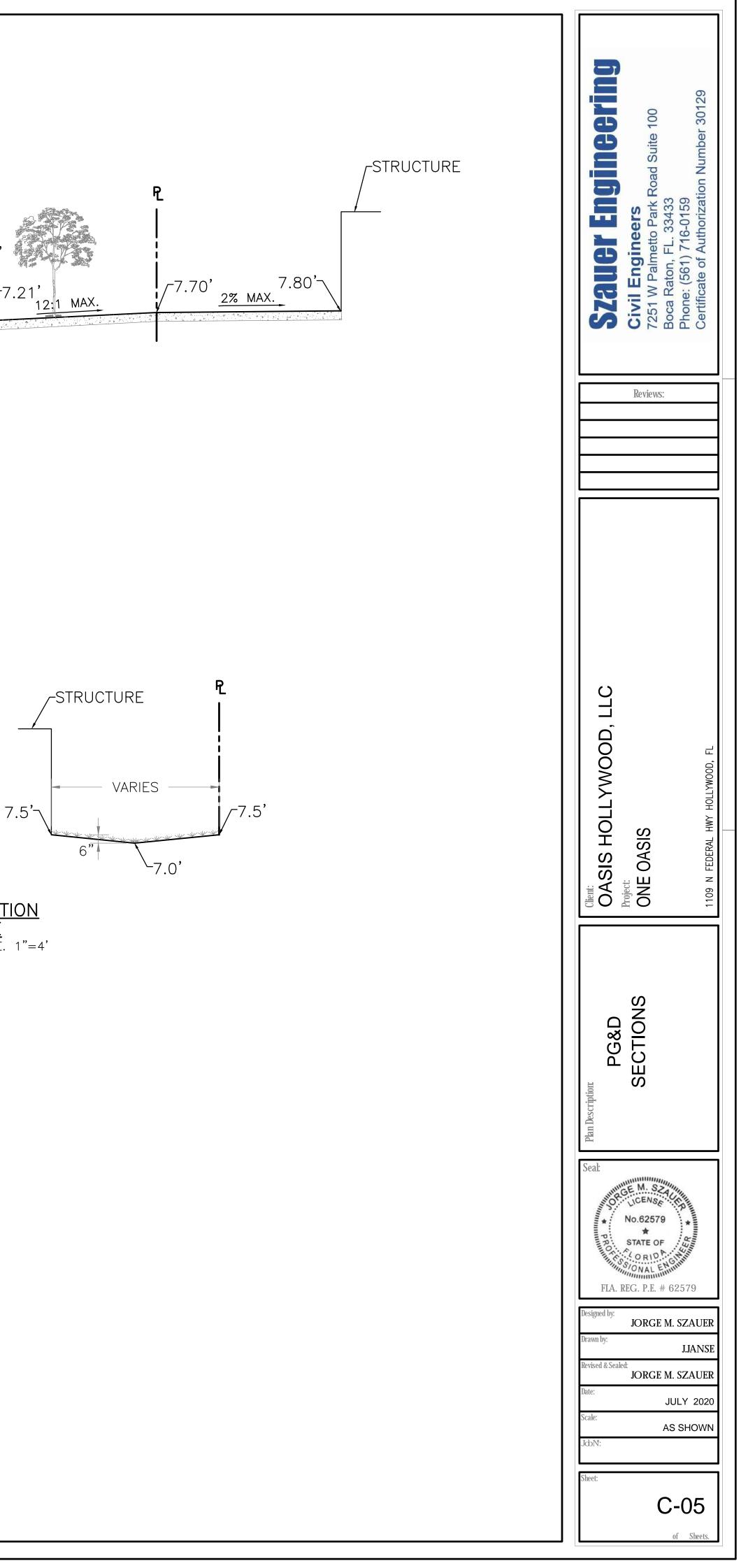
NOTE:

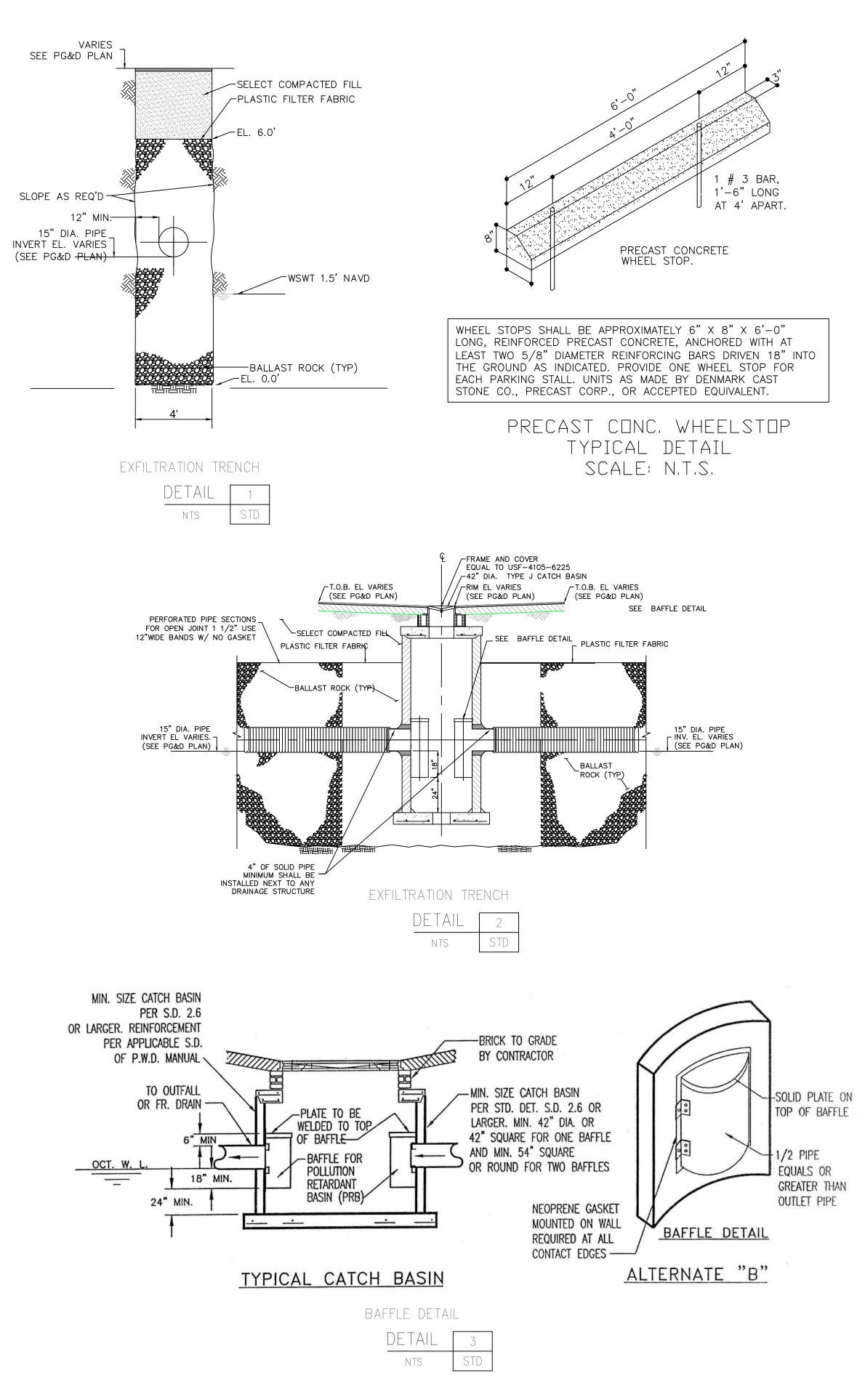
PROPOSED ELEVATIONS ARE RELATIVE TO NAVD 88. NAVD = NGVD - 1.6'

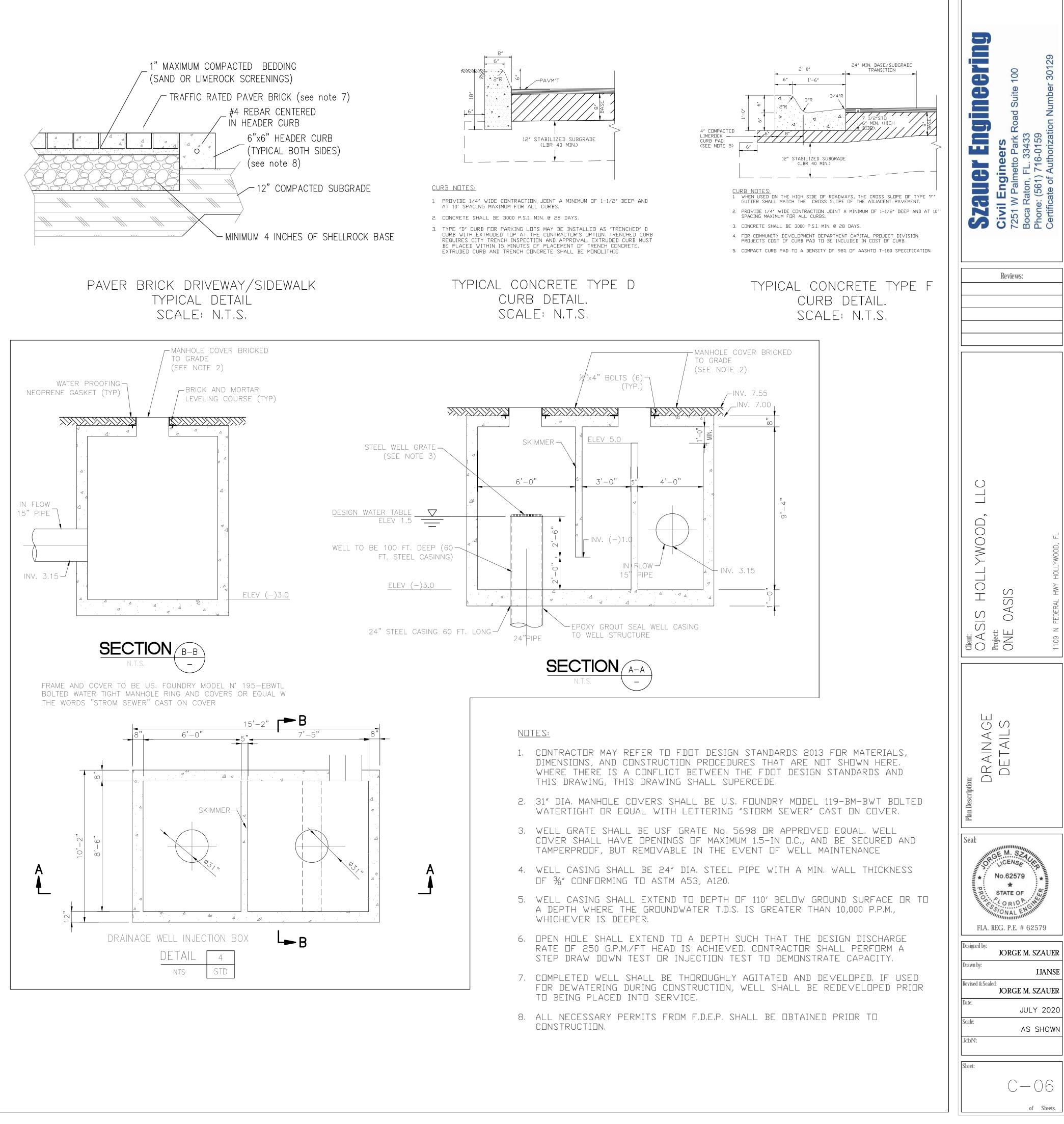
Szaugr Engingering Civil Engineers 7251 W Palmetto Park Road Suite 100 Boca Raton, FL. 33433	Phone: (561) /16-0159 Certificate of Authorization Number 30129
Reviews:	
Client: OASIS HOLLYWOOD, LLC Project: ONE OASIS	1109 N FEDERAL HWY HOLLYWOOD, FL
Plan Description PAVING, GRADING & DRAINAGE	
Seal: No.62579 No.62579 STATE OF FLA. REG. P.E. # 62.	INVEER *
Designed by: JORGE M. S Drawn by: Revised & Sealed:	J.JANSE
JORGE M. S	ZAUER
Scale: AS S	_Y 2020 SHOWN
Scale:	

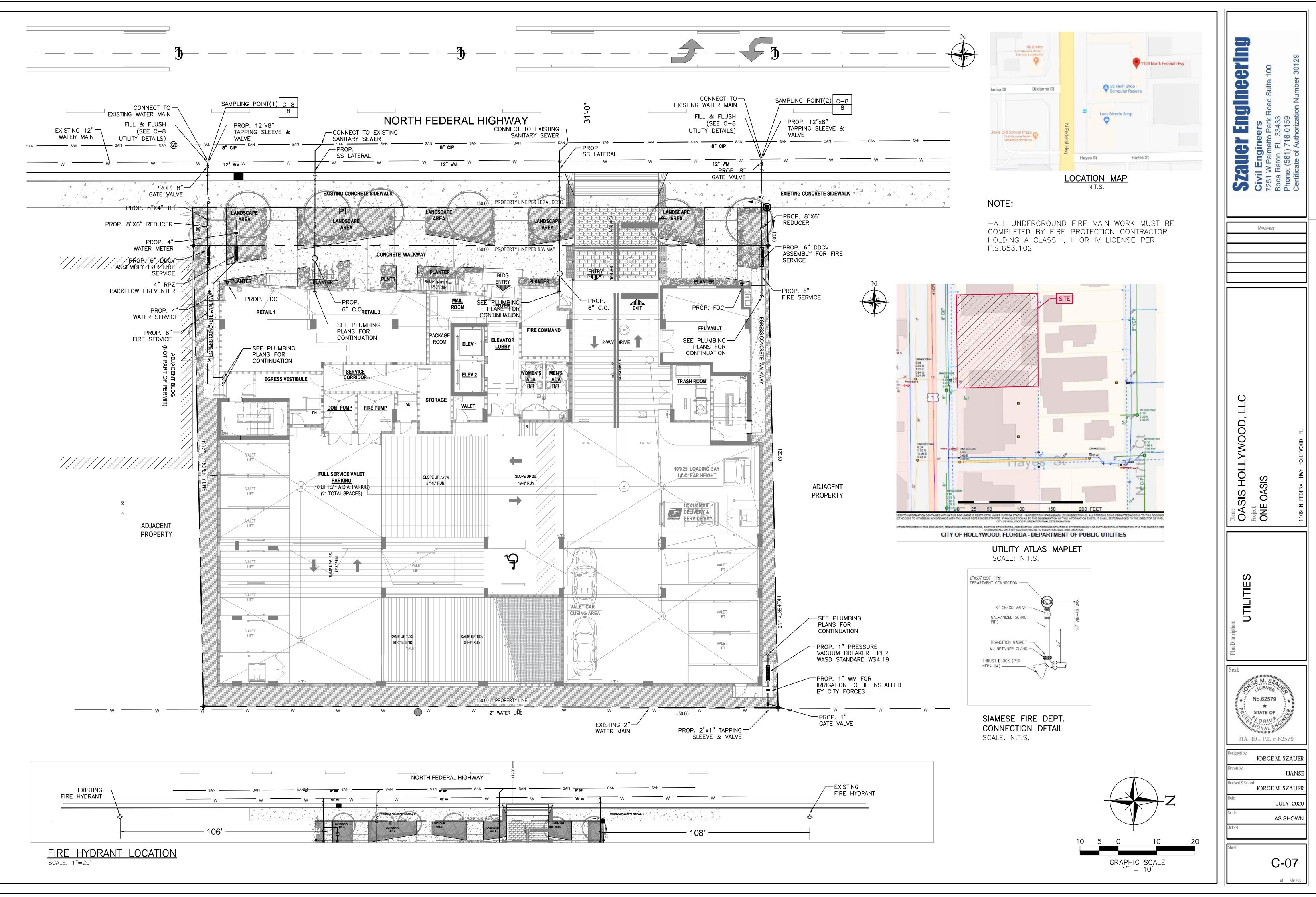




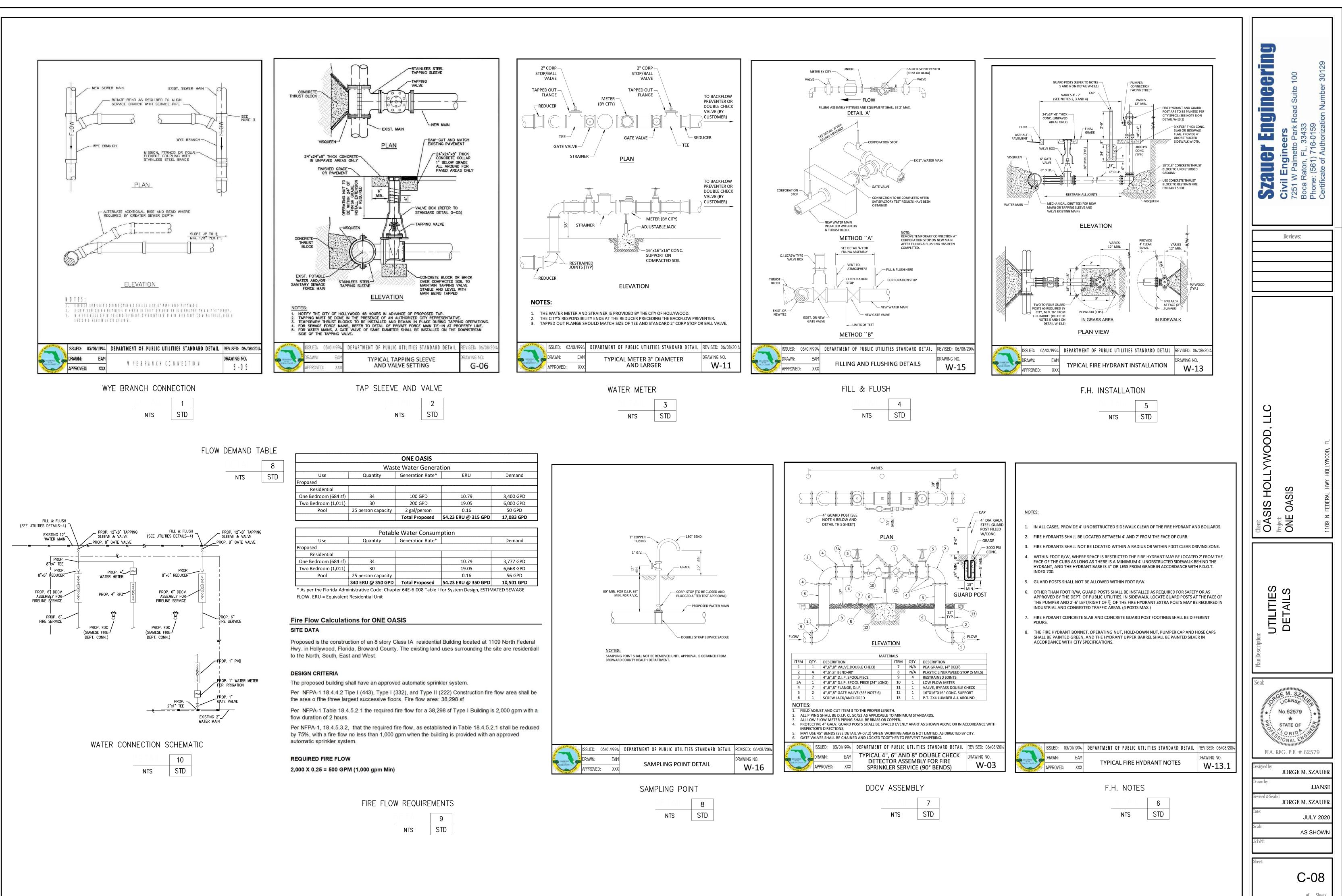




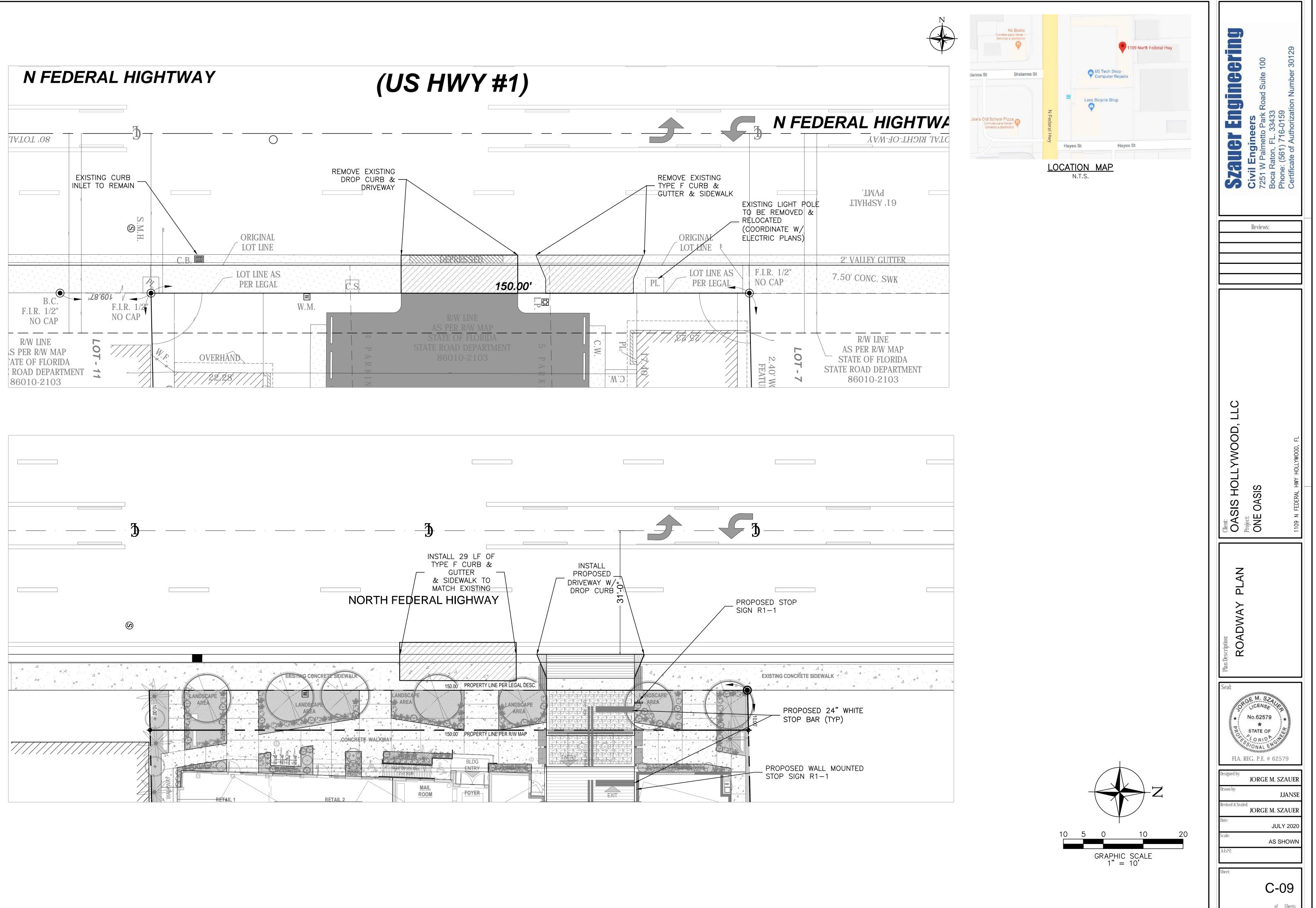


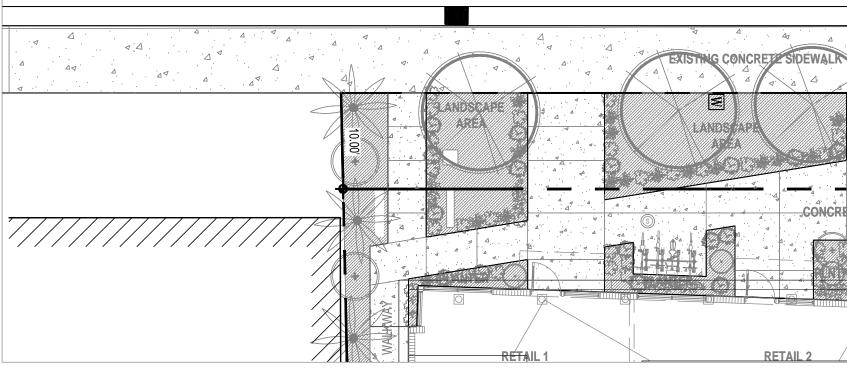


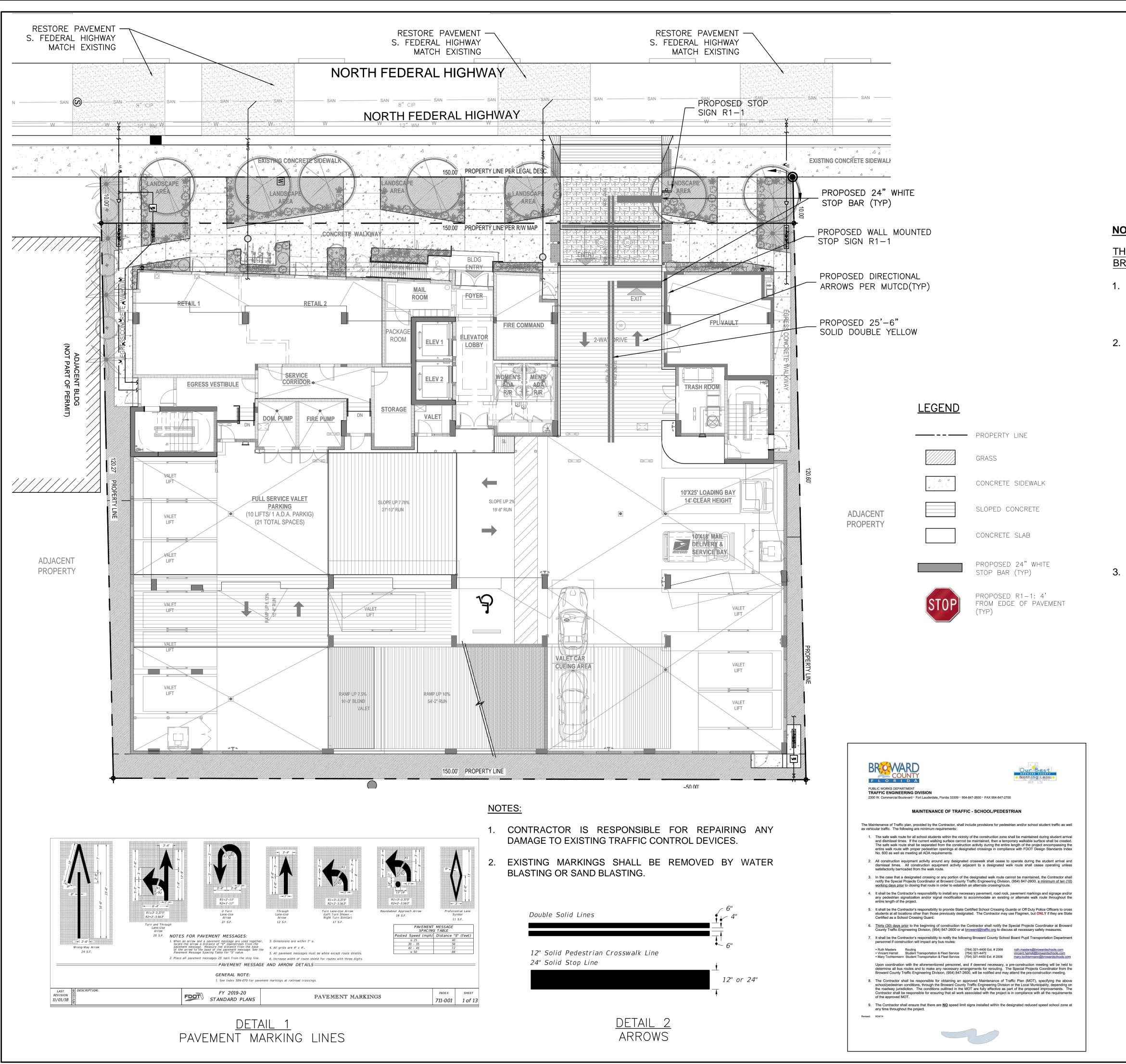
	SAN SAN	— SAN SAN W W W	EXISTING FIRE HYDRANT
150.00° PROPERTY LINE PER LEGAL DES			
		108'	

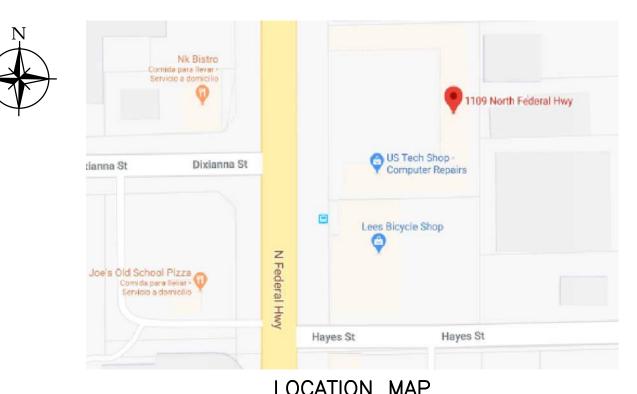


01 She







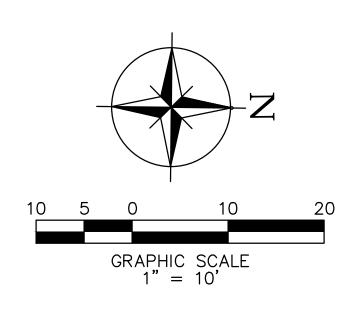


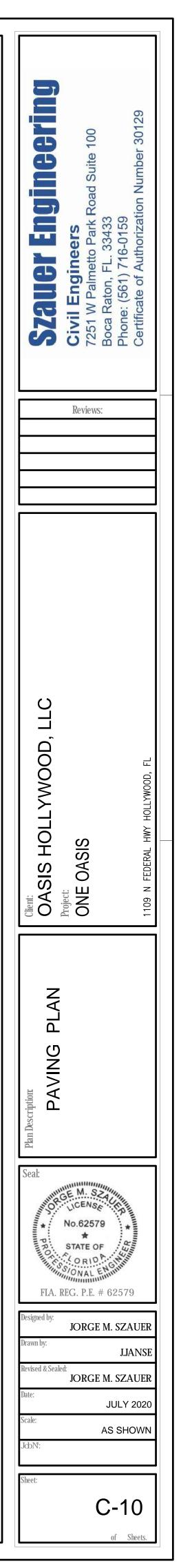
LOCATION MAP

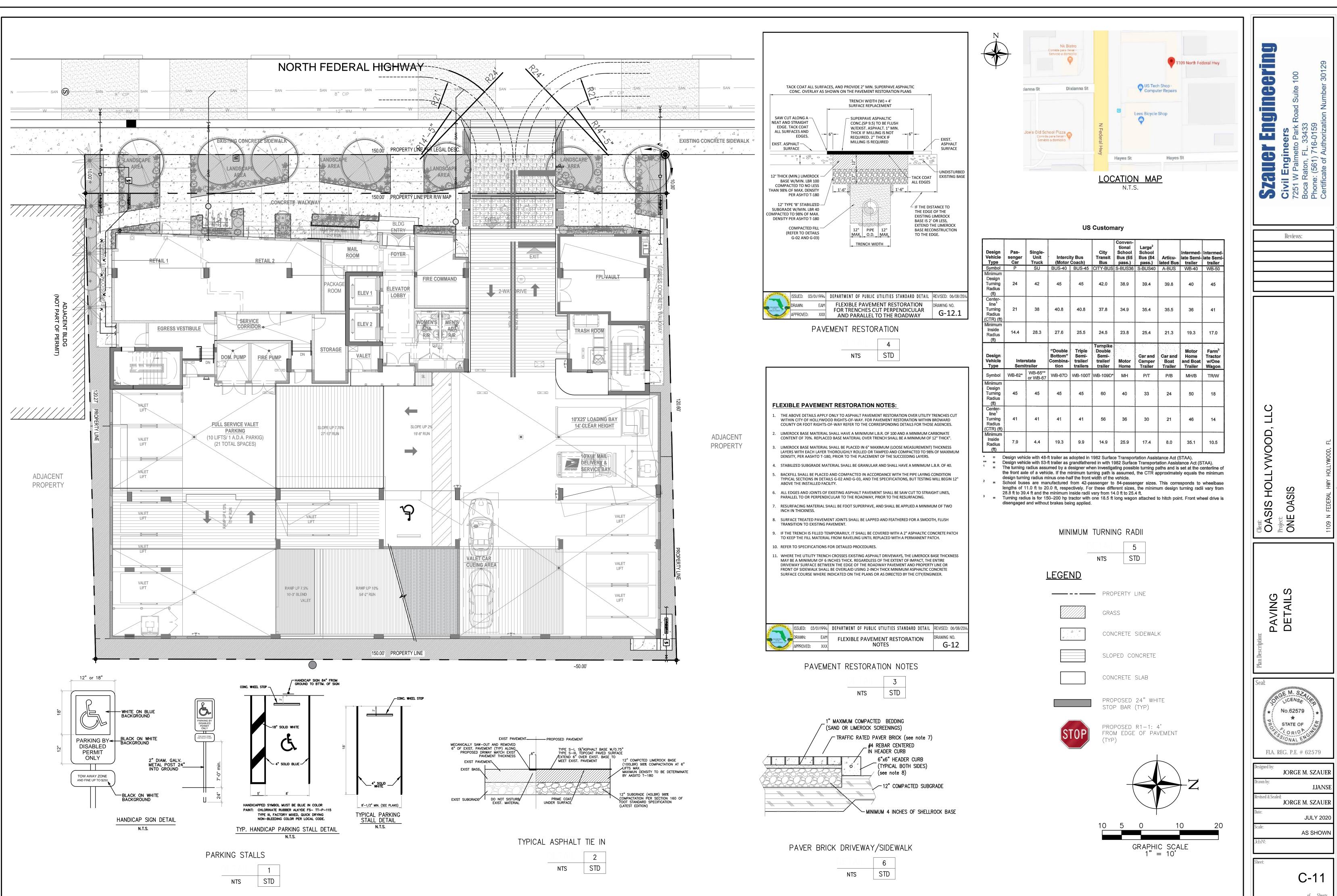
NOTES:

THE FOLLOWING ITEMS ARE NOT REVIEWED OR ACCEPTED BY BROWARD COUNTY:

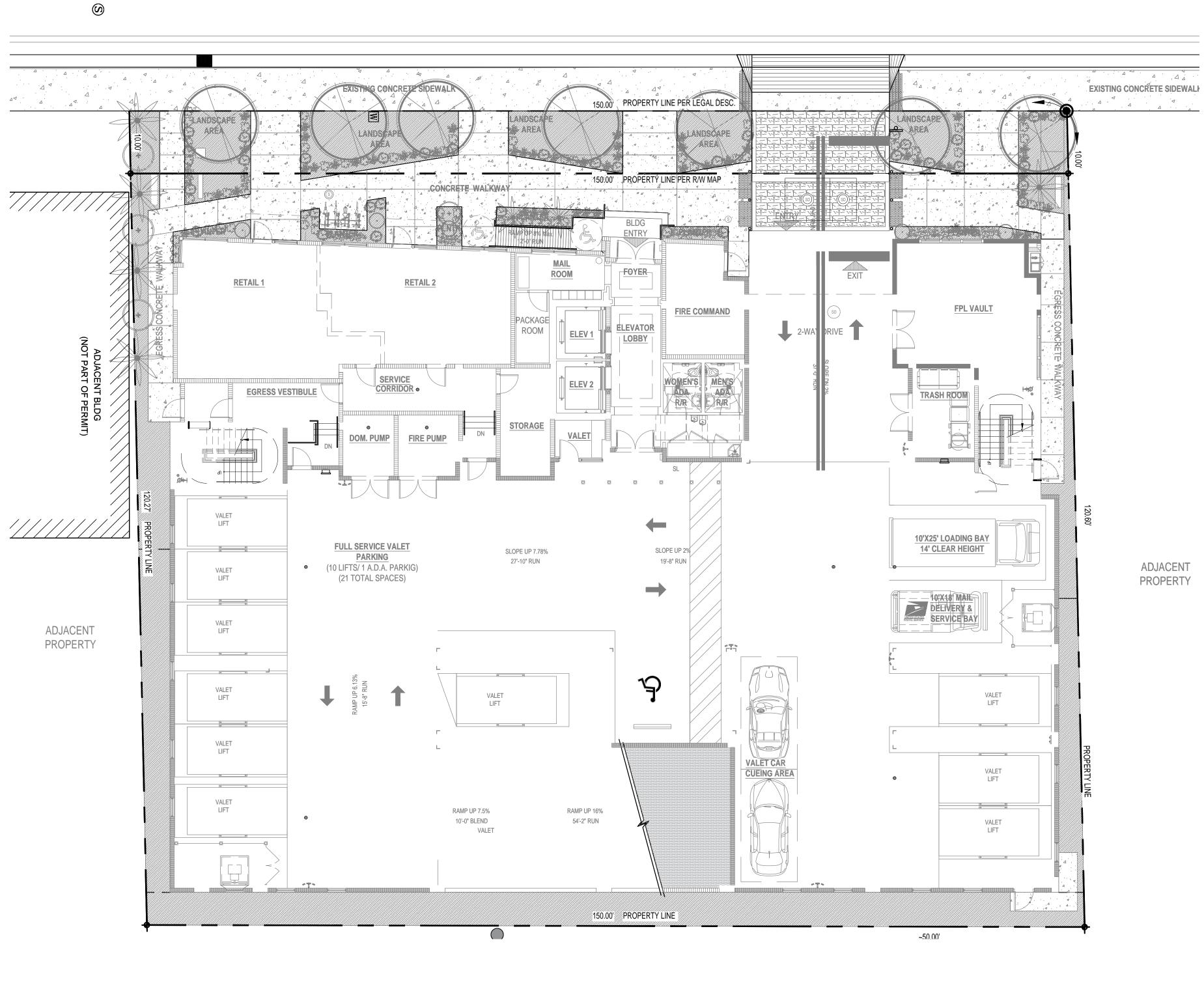
- 1. BROWARD COUNTY TRAFFIC ENGINEERING DIVISION'S REVIEW DOES NOT INCLUDE A REVIEW AND ACCEPTANCE OF THE PROJECT'S DESIGN OR OPERATION. THESE ITEMS ARE TO BE REVIEWED AND APPROVED BY THE CITY ENGINEER.
- BROWARD COUNTY TRAFFIC ENGINEERING DIVISION DOES NOT REVIEW AND APPROVE, OR INSPECT AND ACCEPT THE FOLLOWING ITEMS FOR MAINTENANCE: PAVEMENT MARKINGS ON OR ADJACENT TO PAVER BRICKS, PAINTED ASPHALT, STAMPED ASPHALT OR PAVEMENT MARKINGS MADE OF PAVER BRICKS, RAISED INTERSECTIONS AND RELATED MARKINGS AND SIGNING, UN-WARRANTED MID-BLOCK CROSSWALKS AND RELATED MARKINGS AND SIGNING, UN-WARRANTED CROSSWALKS AND RELATED MARKINGS AND SIGNING, PAINTED/DECORATIVE CROSSWALKS, RAISED CROSSWALKS AND RELATED MARKINGS AND SIGNING, ADVANCED WARNING PAVEMENT MARKINGS FOR SPEED TABLES, BLINKER SIGNS, RECTANGULAR RAPID FLASHER BEACONS AND RELATED MARKINGS AND SIGNING, ON-STREET PARKING AND RELATED MARKINGS AND SIGNING, IN-ROAD LIGHTING AND RELATED MARKINGS AND SIGNING, GREEN BIKE LANES, FLEXIBLE DELINEATORS, DECORATIVE SIGNS AND DECORATIVE SIGN POSTS, PLANTERS, ON-SITE PAVEMENT MARKINGS AND SIGNING, OFF-SITE PAVEMENT MARKINGS AND SIGNING IN RIGHT-OF-WAY THAT IS NOT DEDICATED FOR PUBLIC USE, SIDEWALK WORK OR ASPHALT WORK.
- 3. THE CITY ENGINEER IS RESPONSIBLE FOR THE REVIEW AND APPROVAL OF THE DESIGN AND OPERATION OF THE PROJECT, AND FOR THE INSPECTION AND ACCEPTANCE OF THE FOLLOWING ITEMS THAT WILL BE MAINTAINED BY THE CITY: PAVEMENT MARKINGS ON OR ADJACENT TO PAVER BRICKS. PAINTED ASPHALT. STAMPED ASPHALT OR PAVEMENT MARKINGS MADE OF PAVER BRICKS. PAVEMENT MARKINGS ON OR ADJACENT TO PAINTED ASPHALT. RAISED INTERSECTIONS AND RELATED MARKINGS AND SIGNING. UN-WARRANTED MID-BLOCK CROSSWALKS AND RELATED MARKINGS AND SIGNING, UN-WARRANTED CROSSWALKS AND RELATED MARKINGS AND SIGNING, PAINTED/DECORATIVE CROSSWALKS, RAISED CROSSWALKS AND RELATED MARKINGS AND SIGNING. ADVANCED WARNING PAVEMENT MARKINGS FOR SPEED TABLES. BLINKER SIGNS, RECTANGULAR RAPID FLASHER BEACONS AND RELATED MARKINGS AND SIGNING, ON-STREET PARKING AND RELATED MARKINGS AND SIGNING, IN-ROAD LIGHTING AND RELATED MARKINGS AND SIGNING, GREEN BIKE LANES, FLEXIBLE DELINEATORS, DECORATIVE SIGNS AND DECORATIVE SIGN POSTS, PLANTERS, ON-SITE PAVEMENT MARKINGS AND SIGNING, OFF-SITE PAVEMENT MARKINGS AND SIGNING IN RIGHT-OF-WAY THAT IS NOT DEDICATED FOR PUBLIC USE, SIDEWALK WORK AND ASPHALT WORK.



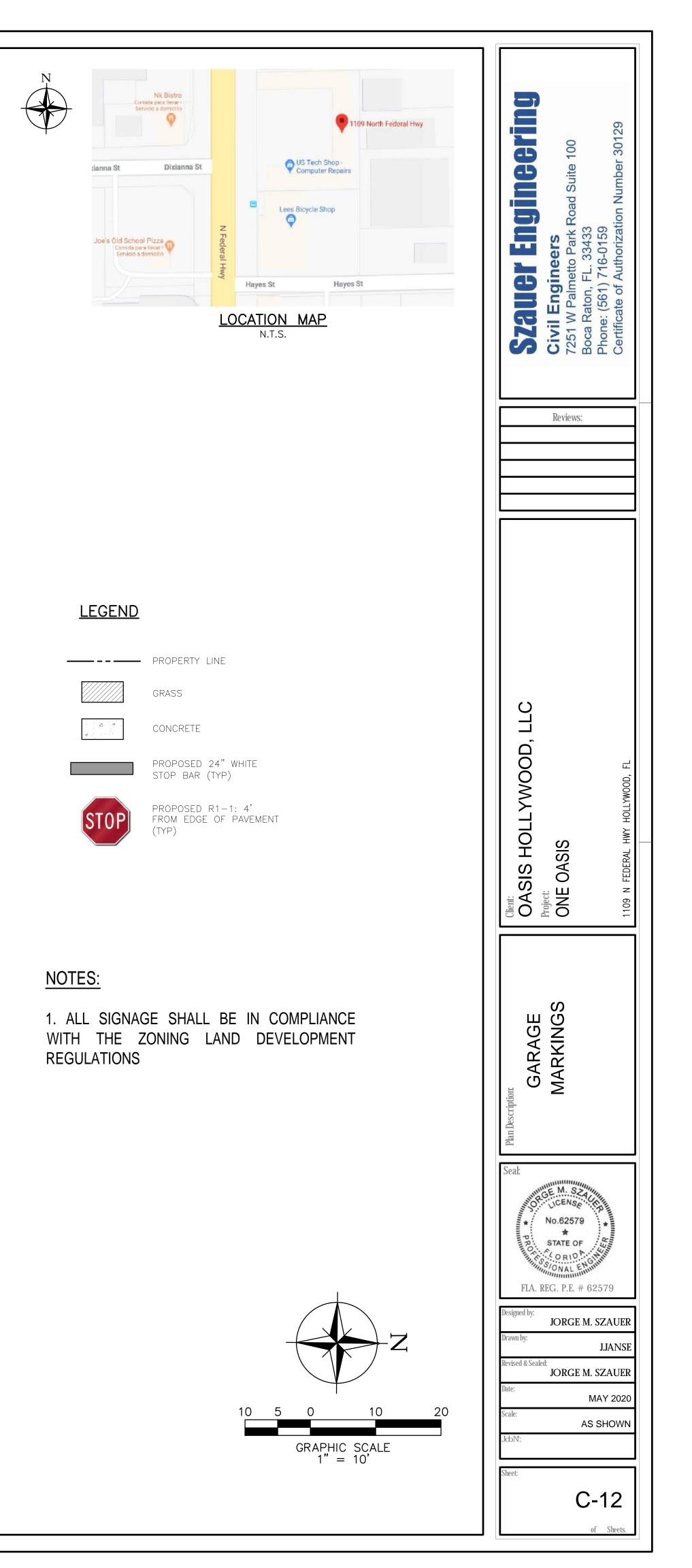


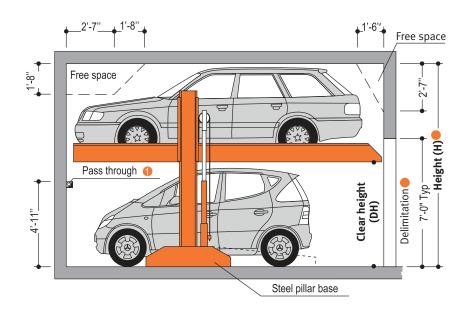


of Sheets.

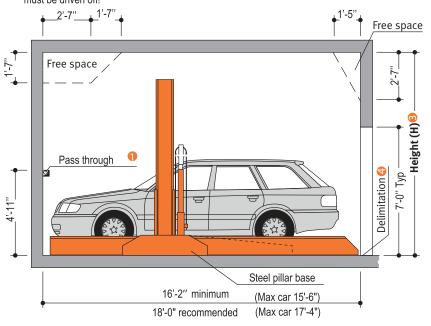


ADJACENT

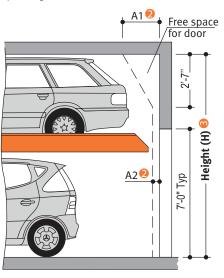




Before lowering the platform, the vehicle parked in the lower parking space must be driven off!



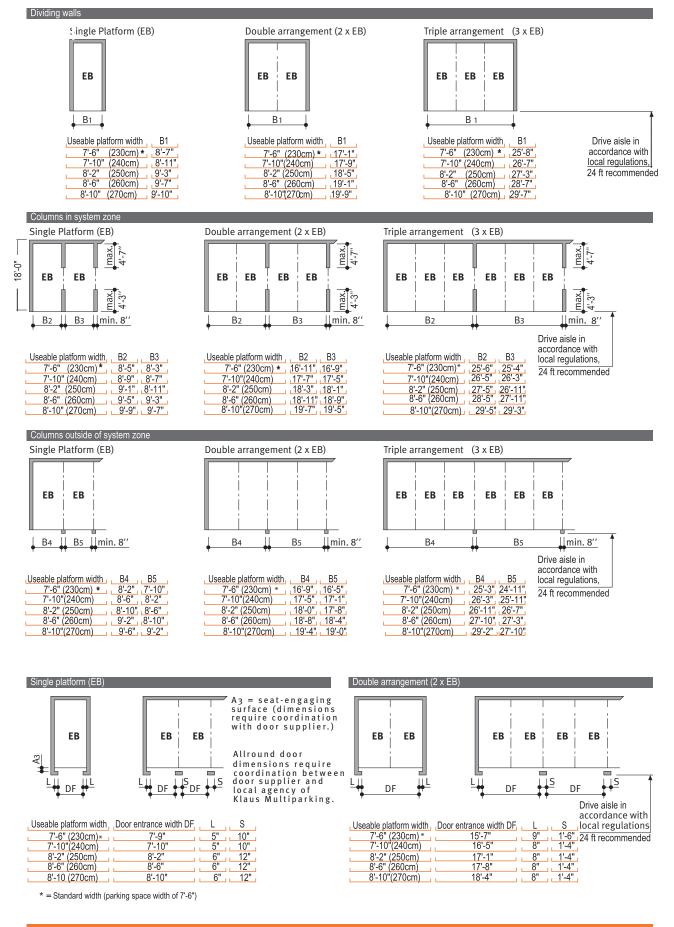
Garage with door in front of the parking machine.



- 1 4" x 4" pass through at walls
- Dimensions A1, and A2 must be coordinated with the door supplier.
- 6) If the total height is greater, the max. vehicle height for the upper parking space increases accordingly.
- 4" wide yellow stripe recommended at at edge of machine (Buyer) 4
- Standard is 4,400lbs; 5,600lbs is available

Produc Singleva	_	ta		K
G61		Loads to 5 A syst any	able 600	lb for
DIMENSIONS All space require finished dimensio plus 1 inch & min	ments are ons. Tolera			
ТҮРЕ	Н			DH * *
2061-160	10'-	6"	5'	-3"
2061-170*	10'-	10"	5	5'-7"
2061-180	11'-	2"	5	5'-11"
2061-190	11'-	6"	6	'-3 "
2061-200	11'-	·10"	e	6'-7"
2061-210	12'		(6'-11"
* = standard type	FOR:	** =	witho	ut car
Standard passeng van. Height and le		tion wag	gon/	
to contour.	Singth doot			EIGHT
TVDE				
TYPE	H		PER	LOWER
2061-160	10'-6'			4'-11"
2061-170	10'-10			5'-3'
2061-180	11'-2'		11"	5'-7''
2061-190	11'-6"			5'-11"
	11'-10		11"	6'-3'
2061-210 * = standard type	12'-2'	4 -	11"	6'-7'
WIDTH		6'-3		
WEIGHT	Max.	4400	/56	00 LBS
WHEEL LOAD	Max.	1100	/137	75 LBS
Standard passen	ger car			
<u><u><u></u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>		2'-2"	4'-9)"•
	<u> </u>			13
т	5'-6" to 1		- 4'-	
Standard station	wagon/va	n/SUV		41 A
see table				
357 te ta		(
15	6		4.	13
Standard passen	15'-6" to ger cars a			
without any sport spoilers, low-prof	s options	such as		
spollers, low-proi	ne tres et	0.		
		7		
multip	arkı	ng		
KLAUS MU				NC
3652A CHES LAFAYETTE,	TNUT S CA 945		I	
Phone 925-284 Fax 925-284				
WEB parklift.				

Tione	920-204-20
Fax	925-284-33
NEB	parklift.com

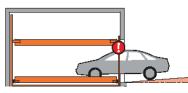


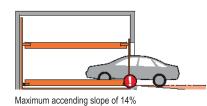
NOTE

End parking spaces are generally more difficult to drive into. Therefore we recommend wider platforms for end parking spaces. Parking on standard width platforms with larger vehicles may make getting into and out of the vehicle difficult. This depends on type of vehicle, approach and above all on the drivers skill. Use the widest platform possible.

APPROACH

The illustrated maximum approach angles must not be exceeded. Exceeding these slopes will cause maneuvering problems and will restrict car sizes on the parking system.





Maximum decending slope of 4%

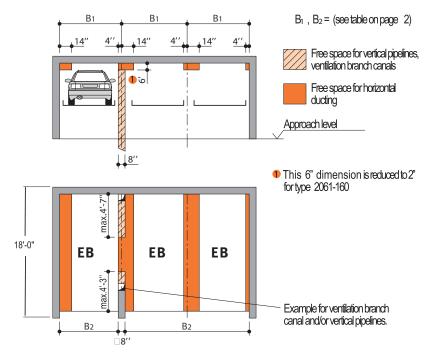
ELECTRICAL INSTALLATION

Suitable electrical supply to the main swiitch and the control wire line must be provided by the customer during installation. One motor control box is suitable for controlling a chain of up to ten lifts.



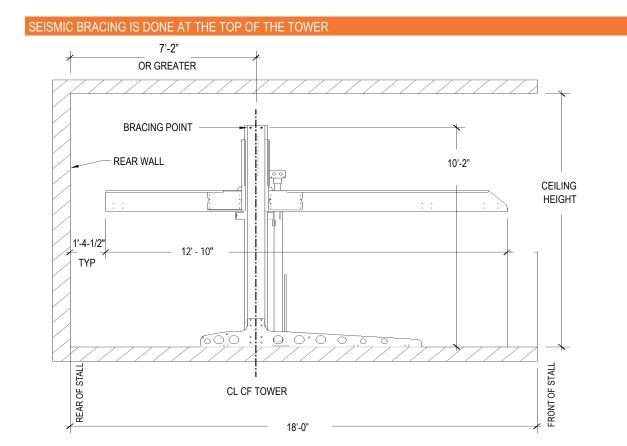
LONGITUDITIONAL FREE SPACE

Free space for longitudinal and vertical ducts (e.g. ventilation). This free space is valid for cars which drive in forward with drivers door on left side





PLEASE NOTE: THE LOWER CAR MUST BE MOVED BY A PERSON TO LOWER THE UPPER CAR



GENERAL DISCRIPTION

The Klaus SingleVario G61 provides dependent access to all cars parked on the system. The lower car must be moved manually to allow the upper car to come down spaces are arranged on two levels, with the lower level parked on the garage slab. Each individual parking bay must be accessible from the drive aisle. The drive aisle must comply with local regulations, but is typically 24' wide. The parking spaces are arranged on two levels, with the lower level parked on the garage slab.

TECHNICAL DATA

RANGE OF APPLICATION

This parking system is suitable for self parking by owners, renters, regular employees or anyone that can be trained on the system. The public may not park this system without a valet.

ENVIRONMENTAL CONDITIONS

Environmental conditions for the systems: Temperature range 14° to 104°F. The system may be installed indoors or outdoors. If lifting times are specified, they refer to an environmental temperature of 72°F and with system setup directly next to the hydraulic unit. At lower temperatures or with longer hydraulic lines, these times increase.

CONTROL SYSTEMS

The machine comes standard with 2 keys per parking space. The key is inserted in user control and turned one way to raise the platform and the other way to lower it. The key is spring loaded and the machine will stop if the operator lets go of the key. A remote control is not available for this machine (due to safety considerations).

SPRINKLER SYSTEM

The sprinklers may be mounted at the rear of each level and between machines if needed.

ELECTRICAL REQUIREMENTS AND HYDRAULIC UNIT

The hydraulic power unit is normally installed against the back wall on a metal motor and hydraulic oil reservoir in one unit. It consists of an electric motor, hydraulic motor and hydraulic oil reservoir in one unit. The hydraulic oil is biodegradeable and environmentally friendly. The electric motor can be supplied in a 208 volt three phase (preferred) or a 240 volt single phase. Both types require a 30 amp circuit. One hydraulic power unit can run up to 25 lifts. KLAUS will provide the motor and motor controller. BUYER to provide a fused disconnect. BUYER to provide conduit and wiring; a.) from fused disconnect (supplied by BUYER) to motor controller (supplied by KLAUS); b.) from motor controller to motor (supplied by KLAUS). KLAUS to furnish and install control wiring.

CORROSION PROTECTION

The platforms should be cleaned annually to maximize their life. The platforms are galvanized and the steel framing members are powder coated.

SERVICE

To maintain safe and reliable operation of the machine, it must be serviced twice per year if located outside in the weather or a minimum of once per year if located inside a garage.

WARRANTY

To machine has a complete one year parts and labor warranty. Klaus provides extended warranties.

SCOPE OF WORK CLARIFICATIONS

1. The garage floor and surrounding walls, columns and beams to provide support for the machine are provided by the customer.

2. All drainage is provided by the customer.

3. General lighting in the garage is provided by the customer. Extra lighting may be needed to light the area below the platform.

 Klaus will supply design assistance and will confirm in writing that the proposed machine will fit in the space provided.

5. Klaus will prepare shop drawings showing the location of all components.

SOUND CONTROL

Numerous sound control features are standard. The hydraulic power unit is mounted on rubber pads. Steel hydraulic lines are mounted with rubber pipe supports. A rubber hose isolates the power unit from the steel hydraulic lines.

Sound tests at the front of the machine show about 67dB to 69dB (A weighting) noise levels (similar to a garage door). An optional power pack cover can reduce the noise to 56dB to 58dB.

In multifamily podium construction, normally no special construction for sound is performed. other sound issues. For residential or wood frame construction, placement of the power unit is critical. Klaus designers will assist with power unit placement and other sound issues.

STRUCTURAL

The machine has steel framing and is anchor bolted to the floor slab with wedge anchors. The framework consists of steel columns and cross members. Galvanized decking spans the framing left to right and creates a liquid tight deck which will not allow drips onto the lower vehicle. In addition to anchor bolts to the floor slab, the machine must be braced in the left / right direction especially for seismic loads.

This can be done in one of two ways:

1.) One of the machine columns can be braced against a wall or column.

2.) Additional angles can be added at the floor level to provide additional support. Please see the G61 bracing details drawing and the Merkle Engineers report for more details.

The lifting mechanism for the upper platform consists of hydraulic cyclinder which raises oneside of the platform. The other side of the platform is raised via a chain. There are safety switches that stop the machine in the event the chain goes loose for any reason.

No fencing is required. 7. The customer must provide a 30 amp 3 phase 208V (or 240Volt single phase) circuit and

fused disconnect for each machine group and power must be available before installation begins. 8. Klaus provides all control wiring.

6. In the event that there is no rear wall. Klaus will provide a stand for the electrical junction box.

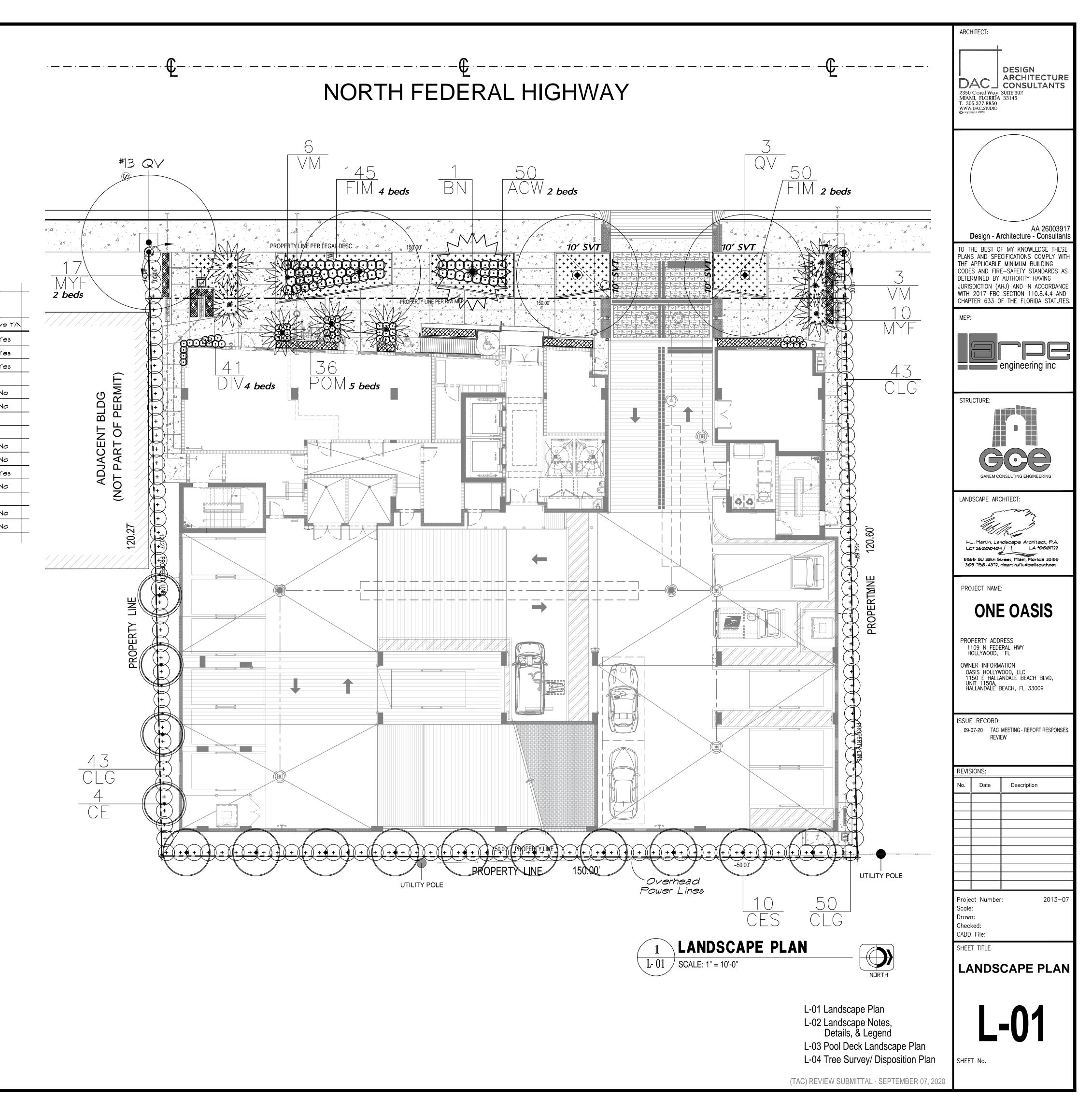
9. All space numbering and striping is to be provided by the customer.

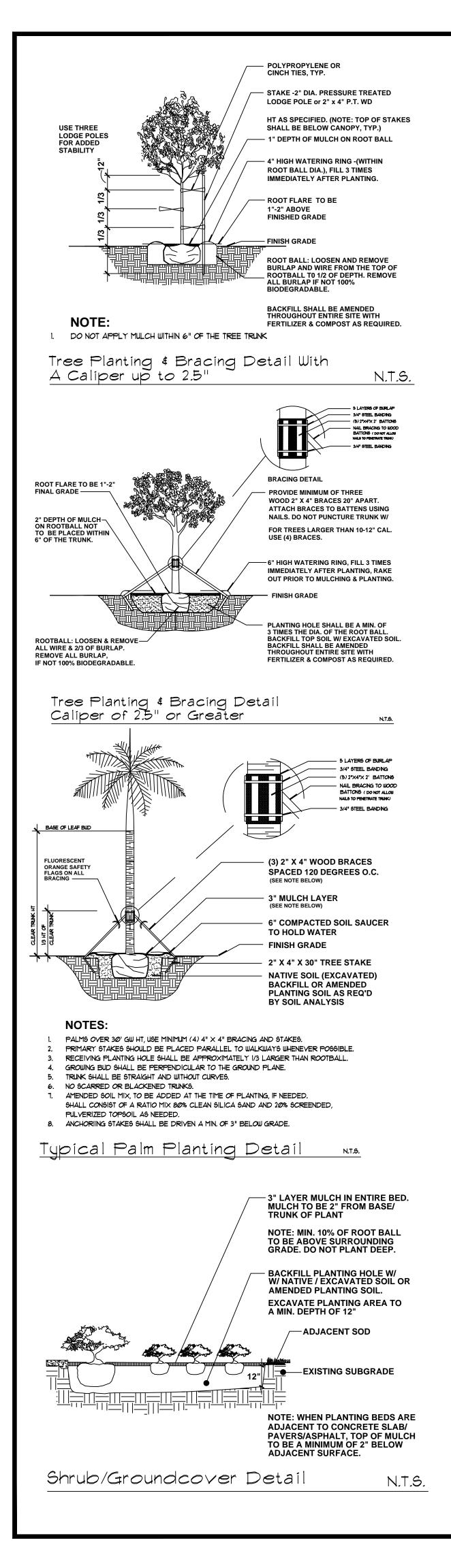
WE RESERVE THE RIGHT TO CHANGE THIS SPECIFICATION WITHOUT FURTHER NOTICE

The Klaus company reserves the right in the course of technical progress to use newer or other technologies, systems, processes, procedures or standards in the fullfillment of their obligations other than those originally offered provided the customer derives no disadvantage from their doing so.

Tree S	Survey List-Exist. to Remain				
Num	Botanical / Commmon Name	E HT	Descrip 1 SPR	tion: HT/SF DBH	PR/DBH/Notes
#13 QV	Quercus virginiana / Live Oak	3Ø'	30'	14"	In R/W

RTY	KEY	Botanical / Commmon Name	Description/ Specification	Nati∨e
3	QV	Quercus virginiana / Live Oak	18-20' oa ht, 9' spr, 5" cal, FG #1	Ye
4	CE	Conocarpus erectus / Green Buttonwood	14' oa ht, 7' spr, 3" cai, FG #1	Ye
10	CES	Conocarpus e. Sericeus / Silver Buttonwood	14' oa ht, 7' spr, 3" cal, FG * 1	Ye
17 Pre	ov′d Tree	25		
9	M	Veitchia montgomeriana / Veitchia Palm	11 @ 16', 5 @ 20', 5 @ 24' oa hts.	No
1	BN	Bismarkia nobilis / Bismarkia Palm	24' oa ht, 16' CT/GW FG #1	No
10 pa	ulms / 3	= 3 Trees		
36	CLG	Clusia guttifera / Small Leaf Clusia	6-7' ht, 3' spr, 25 gal.	No
36	POM	Podocarpus macrophyllus / Podocarpus	3-4' ht, 2' spr, 15 gal.	No
27	MYF	Myrcianthes fragrans / Simpson Stopper	5' ht, 2' spr, 15 gal.	Ye
5Ø	ACW	Acalypha wilkesiana / Red Leaf Acalypha	2' ht, 18" spr, 3 gal.	No
41	DIV	Dietes vegeta / White African Iris	2' ht x 18" spr, 3 gal.	No
195	FIM	Fícus microcarpa / Green Island Fícus	12" ht, 12" spr, 3 gal.	Nc





LANDSCAPE ARCHITECT'S PLANT / PLANTING NOTES

- 1. ALL PLANT MATERIAL TO BE FLORIDA GRADE NO. 1 (FG #1) OR BETTER FLORIDA DEPARTMENT OF AGRICULTURE GRADES AND STANDARDS + PARTS | AND 11, 5th EDITION: 2015. RESPECTIVELY.
- 2. TWO MEETINGS, PRE-INSTALLATION & SUBSTANTIAL COMPLETION, SHALL BE REQ'D

- 5. LANDSCAPE CONTRACTOR SHALL REVIEW ALL DRAWINGS AND PREPARE ONES OWN QUANTITY COUNTS (PRIOR TO BID COST AND COMPARE TO ARCHITECT'S PLANT LIST). LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR ATTAINING ACCURATE COUNT OF PLANT MATERIALS SPECIFIED. IN THE EVENT OF DISCREPANCIES, LANDSCAPE CONTRACTOR SHALL BRING TO THE ATTENTION OF LANDSCAPE ARCHITECT. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF THE LANDSCAPE PLAN, LANDSCAPE PLAN SHALL TAKE PRECEDENCE OVER PLANT LIST.
- 6. LANDSCAPE CONTRACTOR SHALL LOCATE AND VERIFY ALL UNDERGROUND UTILITIES PRIOR TO DIGGING, SUNSHINE STATE ONE CALOF FLORIDA. (800) 432-4770.
- 7. ALL TREES TO BE STAKED IN A GOOD WORKMANLIKE MANNER, NO NAIL STAKING IN TRUNKS PERMITTED. ALL GUYING & STAKING TO BE REMOVED WITHIN 12 MONTHS AFTER PLANTING.
- ALL CONSTRUCTION DEBRIS SHALL BE REMOVED.
- 9. ALL INVASIVE EXOTIC PLANTS (CAT.I) TO BE REMOVED FROM SITE, PRIOR TO LANDSCAPE ARCHITECTS' FINAL INSPECTION, REFER TO FLORIDA EXOTIC PEST PLANT COUNCIL (FLEPPC) 2015 LIST OF EXOTIC PLANT SPECIES, CAT#1, ONLY.
- 10. ALL SOD SHALL BE ST. AUGUSTINE 'FLORATAM' SOLID SOD, (UNLESS OTHERWISE NOTED) AND LAID WITH ALTERNATING AND ABUTTING JOINTS. SOD SHALL BE LAID OVER A 2" LAYER OF TOPSOIL. LANDSCAPE CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT, PRIOR TO INSTALLATION.
- 11. MULCH SHALL BE EUCALYPTUS OR PINE BARK MULCH (UNLESS OTHERWISE NOTED) APPLIED AT A MIN. DEPTH OF 3" OVER PLANTING BEDS. MULCH SHALL NOT APPLIED OVER ANNUAL PLANTING BEDS. MULCH SHALL NOT BE PLACED WITHIN 6" OF TREE & PALM TRUNKS. TOP OF MULCH SHALL NOT EXCEED HEIGHT OF ADJACENT PAVED SURFACES.
- 10. ALL PLANTED AREAS TO RECEIVE 100% COVERAGE BY AN AUTOMATIC IRRIGATION SYSTEM, WITH A MINIMUM OF 50% OVERLAP. RAIN SENSOR TO BE PROVIDED. IRRIGATION SYSTEM TO BE INSTALLED IN COMPLIANCE W/ FLORIDA BUILDING CODE, (FBC), LATEST EDITION. BUBBLERS SHALL BE INSTALLED ON ALL RELOCATED & INSTALLED TREES & PALMS TO AID IN THEIR ESTABLISHMENT, REFER TO LANDSCAPE PLAN.

DURING INSTALLATION/CONSTRUCTION PROCESS. PRE-INSTALLATION MEETING SHALL BE SCHEDULED W/ LANDSCAPE ARCHITECT, TWO WEEKS PRIOR TO INSTALLATION.

3. A MUNICIPALLY APPROVED LANDSCAPE PLAN IS A LEGAL & BINDING DOCUMENT. NO CHANGES SHALL BE MADE WITHOUT PRIOR NOTIFICATION & SUBSEQUENT WRITTEN APPROVAL OF THE LANDSCAPE ARCHITECT & GOVERNING MUNICIPALITY. (IF REQ'D)

4. LANDSCAPE PLAN SHALL BE INSTALLED IN COMPLIANCE WITH ALL LOCAL/PERTINENT CODES.

8. ALL PLANTING BEDS TO BE WEED AND GRASS FREE, AND SHALL BE EXCAVATED TO A DEPTH OF 12" BELOW GRADE. TOP OF BEDS SHALL BE 3" BELOW ADJ. PAVED SURFACES.

Tree Survey List-Exist. to Remain

Num	Botanical / Commmon Name
#13 QV	Quercus virginiana / Live Oak

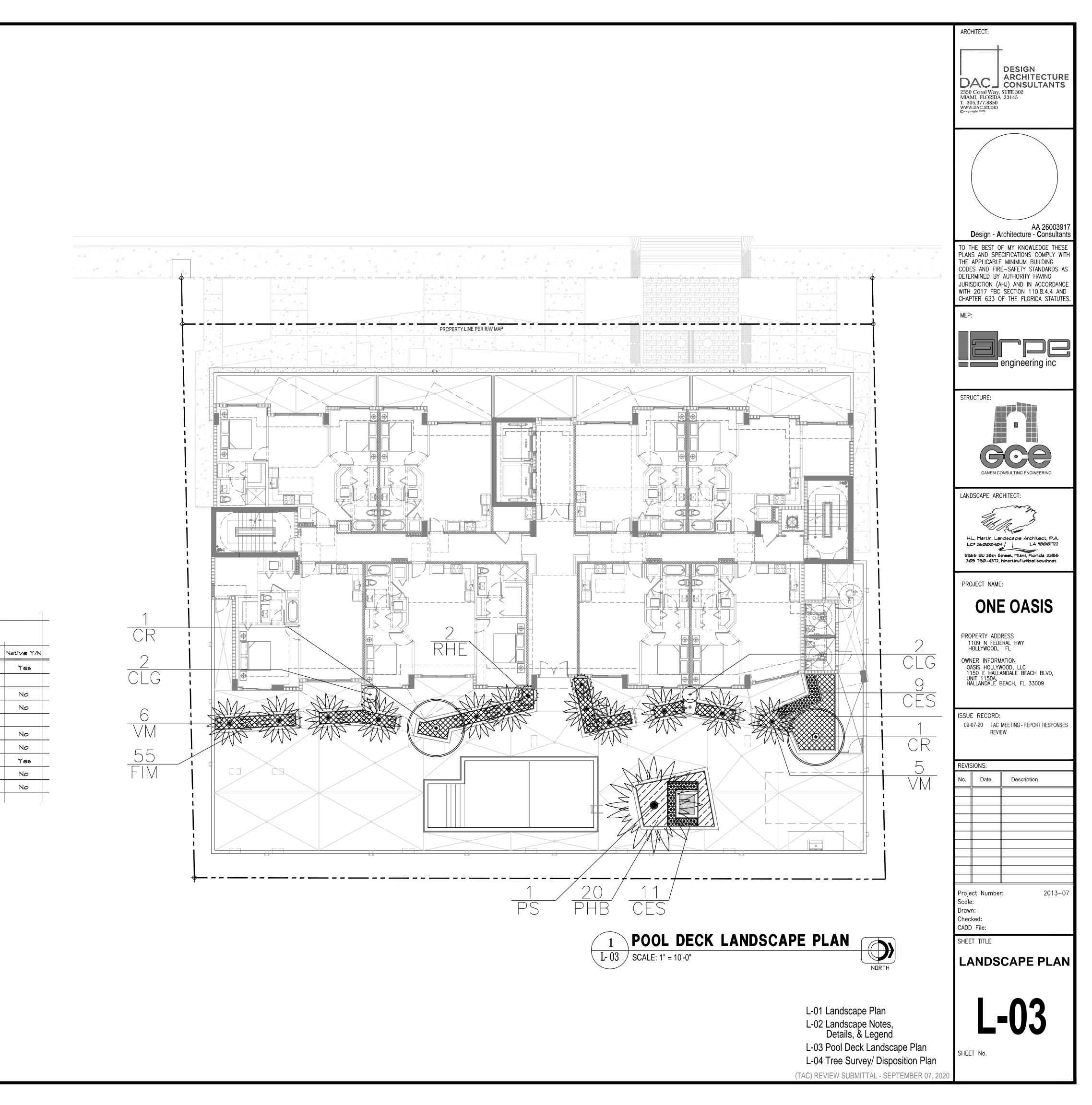
QTY	KEY	Botanical / Commmon Name	Description/ Specification	Native Y/N
3	QV	Quercus virginiana / Live Oak	18-20' oa ht, 9' spr, 5" cal, FG #1	Yes
4	CE	Conocarpus erectus / Green Buttonwood	14' oa ht, 7' spr, 3" cal, FG # 1	Yes
10	CES	Conocarpus e. Sericeus / Silver Buttonwood	14' oa ht, 7' spr, 3" cal, FG # 1	Yes
17 Pro	ov∕d Tree	PS		
9	MV	Veitchia montgomeriana / Veitchia Palm	11 @ 16', 5 @ 20', 5 @ 24' 0a hts.	NO
1	BN	Bismarkia nobilis / Bismarkia Palm	24' oa ht, 16' CT/GW FG #1	No
10 pa	ulms / 3	= 3 Trees		
136	CLG	Clusia guttifera / Small Leaf Clusia	6-7' ht, 3' spr, 25 gal.	No
36	POM	Podocarpus macrophyllus / Podocarpus	3-4' ht, 2' spr, 15 gal.	No
27	MYF	Myrcianthes fragrans / Simpson Stopper	5' ht, 2' spr, 15 gal.	Yes
5Ø	ACW	Acalypha wilkesiana / Red Leaf Acalypha	2' ht, 18" spr, 3 gal.	No
41	DIV	Dietes vegeta / White African Iris	2' ht x 18" spr, 3 gal.	No
195	FIM	Ficus microcarpa / Green Island Ficus	12" ht, 12" spr, 3 gal.	No

2TY	KEY	Botanical / Commmon Name	Description/ Specification	Native T
2	CR	Clusia rosea / Pitch Apple	14' oa ht, 7' spr, 3" cal, FG #1	Yes
2 Prov	d Trees	3		
11	M	Veitchia montgomeriana / Veitchia Palm	6 @ 16', 5 @ 20', 0a hts.	No
	P9	Phoenix sylvestris / Sylvester Date Palm	24' oa ht, 16' CT/GW FG #1	No
12 pal	lms / 3 =	= 3 Trees		
2	RHE	Rhapis excelsa / Lady Palm	4'-5' oa ht, matched.	No
4	CLG	Clusia guttifera / Small Leaf Clusia	3-4' ht, 2' spr, 15 gal.	No
2Ø	CES	Conocarpus e. sericeus / Silver Buttonwood	3-4' ht, 2' spr, 15 gal.	Yes
2Ø	PHB	Philodendron Burle Marx / Burle Marx	2' ht x 18" spr, 3 gal.	No
25	FIM	Ficus microcarpa / Green Island Ficus	12" ht, 12" spr, 3 gal.	No

L			
	escrip	tion: HT/SPR/	DBH/Notes
HŤ	SPR	DBH	Notes
30'	30'	14"	In R/W

	ARCHITECT:
	DAC DESIGN ARCHITECTURE ONSULTANTS 2350 Coral Way, SUITE 302 MIAMI, FLORIDA 33145 T. 305.377.8850 WWW.DAC.STUDIO O copyright 2020
	AA 26003917 Design - Architecture - Consultants
	TO THE BEST OF MY KNOWLEDGE THESE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES AND FIRE-SAFETY STANDARDS AS DETERMINED BY AUTHORITY HAVING JURISDICTION (AHJ) AND IN ACCORDANCE WITH 2017 FBC SECTION 110.8.4.4 AND CHAPTER 633 OF THE FLORIDA STATUTES.
	MEP:
Native Y/N Yes Yes Yes	engineering inc
	STRUCTURE:
NO NO	
No	$G \odot =$
NO Yes	GANEM CONSULTING ENGINEERING
No	LANDSCAPE ARCHITECT:
No	The In the second
No	HL. Martin, Landscape Architect, P.A.
	LC* 26000404 5965 SW 38th Street, Miami, Florida 33155 305 790-4372, himartinufiu@bellsouthnet
	PROJECT NAME:
	ONE OASIS
Native Y/N	UNE UASIS
Yes	PROPERTY ADDRESS 1109 N FEDERAL HWY
No	HOLLYWOOD, FL OWNER INFORMATION OASIS HOLLYWOOD, LLC
No	UNIT 1150A, HALLANDALE BEACH BLVD, HALLANDALE BEACH, FL 33009
No	
No Tes	ISSUE RECORD: 09-07-20 TAC MEETING - REPORT RESPONSES
No	REVIEW
	REVISIONS:
	No. Date Description
	Project Number: 2013-07
	Project Number: 2013-07 Scale: Drawn:
	Checked: CADD File:
	SHEET TITLE
	LANDSCAPE NOTES, DETAILS & LEGEND
L-01 Landscape Plan	
L-02 Landscape Notes, Details, & Legend	L-02
L-03 Pool Deck Landscape Plan L-04 Tree Survey/ Disposition Plan	SHEET No.
(TAC) REVIEW SUBMITTAL - SEPTEMBER 07, 2020	
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QTY	KEY	Botanical / Commmon Name	Description/ Specification	Né
2	CR	Clusia rosea / Pitch Apple	14' oa ht, 7' spr, 3" cal, FG #1	
2 Prov	/d Trees	;		
11	M	Veitchia montgomeriana / Veitchia Palm	6 @ 16', 5 @ 20', 0a hts.	
1	P9	Phoenix sylvestris / Sylvester Date Palm	24' oa ht, 16' CT/GW FG #1	
12 pa	lms / 3 =	= 3 Trees		
2	RHE	Rhapis excelsa / Lady Palm	4'-5' oa ht, matched.	
4	CLG	Clusia guttifera / Small Leaf Clusia	3-4' ht, 2' spr, 15 gal.	
2Ø	CES	Conocarpus e. sericeus / Silver Buttonwood	3-4' ht, 2' spr, 15 gal.	
2Ø	PHB	Philodendron Burle Marx / Burle Marx	2' ht x 18" spr, 3 gal.	
125	FIM	Ficus microcarpa / Green Island Ficus	12" ht, 12" spr, 3 gal.	



Num	Rotanical / Common Name	Description: HT/SPF			PR/DBH/Note	
Num	Botanical / Commmon Name	нт	SPR	DBH	Notes	
#1 QV	Quercus virginiana / Live Oak	32'	27'	17"	In R/W	
#2 Q∨	Quercus virginiana / Live Oak	32'	45'	22"	In R/W	
#3 SR	Syagrus romanzoffiana / Queen Palm	28'	ਸ਼ੁ	10"		
#4 SM	Swietenia mahagoni / Mahogany	3Ø'	48'	19"		
#5 BB	Bucida buceras / Black Olive	3Ø'	42'	3Ø"		
#6 SR	Syagrus romanzoffiana / Queen Palm	32'	13'	ູ		
#1 BB	Bucida buceras / Black Olive	4Ø'	34'	19"		
#8 SR	Syagrus romanzoffiana / Queen Palm	35'	15'	10"		
#9 BB	Bucida buceras / Black Olive	40'	50'	24"		
#1Ø QV	Quercus virginiana / Live Oak	24'	30'	13"	In R/W	
#11 SR	Syagrus romanzoffíana / Queen Palm	15'	13'	8"		
#12 SR	Syagrus romanzoffiana / Queen Palm	2Ø'	' ۲	- "		
#13 QV	Quercus virginiana / Live Oak	3Ø'	3Ø'	14"	In R/W	
#14 FA	Fícus aurea / Strangler Fíg	35'	3Ø'	24"		
#15 DR	Delonix regia / Royal Poinciana	18'	22'	14"		
#16 DR	Delonix regia / Royal Poinciana	16'	10'	3"		
#17 SM	Swietenia mahagoni / Mahogany	14'	ე ⁻	3"		
#18 SM	Swietenia mahagoni / Mahogany	10'	6'	3"		
#19 SM	Swietenia mahagoni / Mahogany	16'	12'	3"		
#20 AL	Albizzia lebbeck / Albizzia	23'	12'	4"		
#21 SM	Swietenia mahagoni / Mahogany	24'	14'	5"		

Indicates Exist. Tree-to Remain.

