

GUEST HOGANS

for N.A.T.I.V.E.

KAYENTA, AZ 86033

SUMMARY OF WORK

A. GENERAL

WORK TO BE DONE UNDER THIS CONTRACT INCLUDES THE FURNISHING OF ALL LABOR, MATERIAL, EQUIPMENT, AND SUPERVISION TO PERFORM ALL WORK FOR CONSTRUCTION OF THE INTENT OF THESE CONSTRUCTION DOCUMENTS.

CONTRACTOR SHALL FURNISH TEMPORARY LIGHT, POWER, BUILDING, PHONE, WATER, AND HEAT.

ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION SHALL CONFORM TO THE CURRENTLY ADOPTED EDITION OF I.B.C., I.M.C., N.E.C., I.F.C., I.P.C. & I.R.C.

B. PROTECTIONS

ANY DISCREPANCIES OR CONFLICTS FOUND IN THE DIMENSIONS, DETAILS, OR OTHER INFORMATION IN THESE DOCUMENTS, ARE TO BE IMMEDIATELY REPORTED TO THE ARCHITECT PRIOR TO OR PROCEEDING WITH THE AFFECTED WORK.

EXCAVATION AND BACKFILL

A. EXCAVATION

EXCAVATE TO SOLID UNDISTURBED BEARING OR TO DEPTH OF ENGINEERED FILL AS SHOWN OR NOTED. COMPACT AS APPROVED BY ARCHITECT.

ALL WALL AND COLUMN FOOTINGS SHALL BEAR ON NATURAL, UNDISTURBED, INORGANIC EARTH. ALL FOOTINGS TO BE 1'-6" MIN. BELOW EXISTING GRADE.

EXCESS CUT TO BE FILLED WITH CONCRETE OR ENGINEERED FILL AT NO EXPENSE TO THE OWNER.

NO FOOTING SHALL BEAR HIGHER THAN A ONE (1) VERTICAL TO TWO (2) HORIZONTAL SLOPE ABOVE ANY EXCAVATION, EXISTING OR PLANNED.

EARTH UNDER FOOTINGS TO BE DRY AND FREE FROM FROST.

DO NOT ALLOW WATER TO ACCUMULATE IN EXCAVATIONS; REMOVE WATER TO PREVENT SOFTENING OF FOUNDATION BOTTOMS, UNDERCUTTING FOOTINGS, AND SOIL CHANGES DETRIMENTAL TO STABILITY OF SUBGRADES AND FOUNDATIONS. RECOMPACT AS REQUIRED.

B. BACKFILL

ALL ROCKS OR DEBRIS OVER 2" IN DIAMETER ARE TO BE REMOVED.

ALL SITE FILL AND BACKFILL SHALL BE PLACED IN MAXIMUM OF 8" LIFTS AND COMPACTED TO 95% DENSITY.

GENERAL AND ROUGH GRADING SHALL HAVE SLOPES THAT ARE UNIFORM, GRADUAL, AND ROUNDED WITH POSITIVE SLOPES OF 2% FOR A 12'-0" MIN. DISTANCE AWAY FROM THE BUILDING.

CONCRETE AND REINFORCING

A. CONCRETE

CONCRETE TO BE 4500 P.S.I. AT DRIVES & SIDEWALKS. THE MAXIMUM SLUMP SHALL BE 4".

PROTECT FRESHLY PLACED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE COLD OR HOT TEMPERATURE; MAINTAIN WITHOUT DRYING AT A RELATIVELY CONSTANT TEMPERATURE FOR A PERIOD OF TIME NECESSARY FOR HYDRATION OF CEMENT AND PROPER HARDENING.

INTERIOR SLABS TO BE POURED MONOLITHICALLY IN AREAS NOT TO EXCEED 500 SQUARE FEET WITHOUT A FOUR STOP OR CONTROL JOINT, SEE TYPICAL DETAILS.

B. REINFORCING

ALL REINFORCING STEEL (REBAR) SHALL CONFORM TO ASTM A615, GRADE 60; TIES AND FIELD BENT BARS TO BE GRADE 40.

ALL REBAR SHALL BE UNPAINTED AND FREE FROM RUST OR LOOSE SCALE.

ALL REBAR TO HAVE A MINIMUM COVER BELOW GRADE 3" WHERE POURED AGAINST EARTH, AND 2" WHERE FORMED.

ALL HORIZONTAL REBAR SHALL BE CONTINUOUS IN ALL FOOTINGS, FOUNDATION WALLS, AND AT ALL CORNERS WITH ALL REBAR LAPPED A MINIMUM OF 40 DIAMETERS OR 20" WHICHEVER IS GREATER.

NO BRICK OR POROUS MATERIAL SHALL BE USED TO SUPPORT REINFORCING OFF THE GROUND.

METALS

STRUCTURAL STEEL SHALL CONFORM TO ASTM A-36 AND ASTM 500 GRADE B & TUBE STEEL SECTIONS.

MISCELLANEOUS STEEL MAY BE ASTM A-36.

ALL BOLTS SHALL CONFORM TO ASTM A-307 UNLESS NOTED OTHERWISE.

PRIMER 2.0 MILS OF ZINC CHROMATE.

MASONRY

1. MASONRY WORK SHALL CONFORM TO ALL REQUIREMENTS OF IBC CHAPTER 21 AND ACI 530, 'BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES'.

2. HOLLOW CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C40, GRADE N, TYPE I, Fm = 1500 PSI.

3. MORTAR SHALL CONFORM TO ASTM C270, TYPE S WITH 28 DAY COMPRESSIVE STRENGTH OF 1800 PSI, MASONRY CEMENT, PRE-MIXED MORTAR AND RETARDANT ADDITIVES SHALL NOT BE USED.

4. GROUT SHALL CONFORM TO ASTM C476, FINE OR COARSE GROUT, WITH 28 DAY COMPRESSIVE STRENGTH OF 2000 PSI, TESTED PER IBC STANDARD 21-10. GROUT SHALL BE FREE OF FLY ASH AND/OR CHLORIDE.

5. SEE DETAILS AND NOTES ON DRAWINGS FOR SIZE AND SPACING OR REINFORCING BARS. LAP SPICES OF REINFORCING IN MASONRY, UNLESS NOTED OTHERWISE, SHALL BE MINIMUM 40 BAR DIAMETERS FOR GRADE 40 REINFORCING SHALL BE SECURED AGAINST DISPLACEMENT WITH WIRE POSITIONERS AT EACH GROUT LIFT AND AT INTERVALS NOT EXCEEDING 8'-0" VERTICALLY. PROVIDE VERTICAL DOWELS FROM FOOTINGS CONTINUOUS THROUGH STEM WALLS INTO MASONRY ABOVE. DOWELS SHALL MATCH SIZE AND SPACING OF ALL VERTICAL REINFORCING. EXTEND ALL HORIZONTAL BOND BEAM REINFORCING IN MASONRY CONTINUOUS AROUND CORNERS AND INTERSECTIONS OR PROVIDE BENT CORNER BARS TO MATCH AND LAP HORIZONTAL BOND BEAM REINFORCING AT CORNERS AND INTERSECTIONS. ALL REINFORCING IN MASONRY SHALL BE ACCURATELY LOCATED PRIOR TO GROUTING AND THE POSITION MAINTAINED DURING GROUTING.

6. ALL CELLS AND COURSES WITH REINFORCING AND ADDITIONAL GROUT SPACES AS REQUIRED BY THE DRAWINGS SHALL BE FILLED SOLID WITH GROUT. PLACE GROUT CONTINUOUSLY. DO NOT INTERRUPT GROUTING FOR MORE THAN ONE HOUR. MECHANICALLY VIBRATE GROUT IN VERTICAL SPACES IMMEDIATELY AFTER POURING AND AGAIN ABOUT 5 MINUTES LATER. RODDING OF GROUT IS NOT ACCEPTABLE.

7. ERECTED MASONRY SHALL BE FOG SPRAYED EVERY 8 HOURS FOR 48 HOURS FOLLOWING INSTALLATION WHEN THE AIR TEMPERATURE EXCEEDS 100° OR WHEN THE AIR TEMPERATURE EXCEEDS 40° AND THE WIND VELOCITY IS GREATER THAN 8 MPH DURING THE FIRST 48 HOURS AFTER ERECTION.

8. DO NOT WORK IN TEMPERATURES BELOW 40 DEGREES F. UNLESS HEATING AND PROTECTION ARE PROVIDED.

9. SOLID GROUT ALL MASONRY BELOW GRADE.

CARPENTRY

ALL ROUGH AND FRAMING LUMBER SHALL BE OF DOUGLAS-FIR-LARCH SELECT STRUCTURAL, MWFA GRADING RULES, GRADE-STAMPED.

ALL PLATES AND SILLS BEARING ON CONCRETE OR MASONRY SHALL BE PRESSURE TREATED.

ALL WARPED, TWISTED, OR DEFECTIVE FRAMING SHALL BE REPLACED.

ALL JOIST OR BEAM HANGERS SHALL BE 'SIMPSON' OR EQUAL.

ALL POST (BASE AND CAP) CONNECTIONS SHALL BE 'SIMPSON' OR EQUAL.

STUD FRAMING SHALL BE 2x6 @ PLUMBING WALLS AND 2x4 AS NOTED AT 16" ON CENTER U.N.O.; SINGLE BOTTOM PLATE AND DOUBLE TOP PLATE, NOT LESS THAN 3 STUDS AT CORNERS. INSTALL SILL SEALER @ ALL WALLS.

ROUGH CARPENTRY AND PLYWOOD:

1. WOOD FRAMING SHALL CONFORM WITH IBC.

2. FRAMING LUMBER SHALL COMPLY WITH THE 1997 EDITION OF THE NATIONAL DESIGN SPECIFICATION. ALL SAWN LUMBER SHALL BE STAMPED WITH THE GRADE MARK OF A LUMBER GRADING AGENCY CERTIFIED BY THE AMERICAN LUMBER STANDARDS COMMITTEE. MAXIMUM MOISTURE CONTENT SHALL NOT EXCEED 19%.

3. ALL PLYWOOD SHALL CONFORM TO PRODUCT STANDARD 1-83 OR APA PRF-108 AND HAVE AN EXTERIOR OR EXPOSURE 1 DURABILITY CLASSIFICATION, AND SHALL BEAR THE STAMP OF AN ICSO APPROVED TESTING AGENCY. LAY UP ROOF AND FLOOR WITH LONG DIMENSION PERPENDICULAR TO SUPPORTS AND STAGGER JOINTS. USE PLYCLIPS AT MIDSPAN OF UNSUPPORTED EDGES AT ROOFS. AT WALLS, PROVIDE 2x WOOD BLOCKING AT ALL UNSUPPORTED EDGES. ALL NAILING SHALL BE WITH COMMON NAILS.

4. OTHER APA RATED STRUCTURAL PANELS (I.E. WATERBOARD AND ORIENTED STRAND BOARD) CONFORMING TO NER-108 AND PRODUCT STANDARD 2-42, AND WITH THE SAME EXPOSURE DURABILITY CLASSIFICATION, NOMINAL THICKNESS AND SPAN/INDEX RATIO MAY BE SUBSTITUTED FOR PLYWOOD IF APPROVED IN WRITING BY THE ARCHITECT DURING THE BIDDING PROCESS.

5. ALL NAILING SHALL BE WITH COMMON NAILS.

DOUBLE UP JOISTS BELOW MECHANICAL EQUIPMENT. PROVIDE 2x SOLID BLOCKING AT MIDSPAN AND AT SUPPORTS OF ALL JOISTS. DOUBLE UP STUDS AT JAMBS AND UNDER BEAMS IN BEARING WALLS. PROVIDE 2x BLOCKING AT MID-HEIGHT OF BEARING STUD WALLS. ALL NAILING NOT NOTED SHALL BE ACCORDING TO TABLE 23-1-Q OF THE INTERNATIONAL BUILDING CODE.

6. DO NOT NOTCH, DRILL OR SPLICE BEAMS OR LOAD BEARING OR STRUCTURAL STUDS WITHOUT PRIOR APPROVAL OF ARCHITECT.

7. JOIST HANGERS AND OTHER MISCELLANEOUS FRAMING ANCHORS SHALL BE AS MANUFACTURED BY THE SIMPSON STRONG-TIE COMPANY OR EQUAL BY OTHER MANUFACTURER WITH CURRENT UCB OR CABO APPROVAL. MULTIPLE, SKENED AND/OR SLOPED HANGERS SHALL BE SUPPLIED BY THE CONTRACTOR WHERE NECESSARY. ALL NAIL HOLES IN JOIST HANGERS AND MISCELLANEOUS FRAMING ANCHORS SHALL BE FILLED WITH NAILS OF THE LARGEST SIZE SHOWN IN THE MANUFACTURER'S LATEST CATALOG.

8. ALL SILL PLATES IN CONTACT W/ CONCRETE/MASONRY SHALL BE PRESSURE TREATED.

SHEATHING SCHEDULE:

LOCATION	SHEATHING	PANEL EDGE	PANEL FIELD
ROOF	3/4" CDX PLYWOOD	12d @ 4" O.C.	12d @ 12" O.C.

NAILING SCHEDULE CONNECTION

1. JOIST TO SILL OR GIRDER; TOENAIL.	3-8D
2. BRIDGING TO JOIST; TOENAIL EACH END.	2-8D
3. TOP PLATE TO STUD; END NAIL.	2-16D
4. STUD TO SOLE PLATE; END NAIL.	22-16D OR 4-8D TOENAIL
5. DOUBLE STUD; FACE NAIL.	16D AT 24" O.C.
6. DOUBLE TOP PLATES; FACE NAIL.	16D AT 16" O.C.
7. TOP PLATES LAPS AND INTERSECTIONS; FACE NAIL.	2-16D
8. CONTINUOUS HEADER, TWO PIECES.	16D AT 16" O.C. ALONG EACH EDGE

9. CEILING JOIST TO PLATE; TOENAIL.	3-8D
10. CONTINUOUS HEADER TO STUD; TOENAIL.	4-8D
11. CEILING JOISTS, LAPS OVER PARTITIONS; FACE NAIL.	3-16D
12. CEILING JOISTS TO PARALLEL RAFTERS; FACE NAIL.	3-16D
13. RAFTER TO PLATE; TOENAIL.	3-8D
14. 1" BRACE TO EACH STUD AND PLATE; FACE NAIL.	2-8D
15. 1" x 8" SHEATHING OR LESS TO EACH BEARING; FACE NAIL.	2-8D
16. WIDER THAN 1" x 8" SHEATHING TO EACH BEARING; FACE NAIL.	3-8D
17. BUILT-UP CORNER STUDS.	16D AT 24" O.C.
18. BUILT-UP GIRDER AND BEAMS.	20D AT 32" O.C. AT TOP AND BOTTOM AND STAGGERED. 2-20D AT ENDS AND AT EACH SPLICE.

MISCELLANEOUS

1. INSULATION: ALL WALL & CEILING CAVITIES SHALL BE FILLED WITH INSULATION AS FOLLOWS:
CEILING: R-50
EXT. WALLS: R-8 (LOGS)
INT. WALLS: R-11 OR R-19 (FILL CAVITY)

WINDOWS: ALL WINDOWS SHALL BE DOUBLE GLAZED OR INSULATING GLASS; MINIMUM U = 0.41 AND SIDING (OR FIXED - SEE ELEVATION), ANDERSON OR EQUAL.

TERMITE TREATMENT: PROVIDE TERMITE TREATMENT UNDER ALL SLAB AREAS WHICH HAVE WOOD FRAMING.

GYPSUM WALLBOARD

PROVIDE GYPSUM WALLBOARD AT ALL WALL AND CEILING SURFACES INDICATED IN DRAWINGS. COMPLETE WITH ALL APPROPRIATE EXPANSION JOINTS, CASTINGS, TRIM, METAL EDGES AND ACCESSORIES. GYPSUM WALLBOARD SHALL HAVE TAPERED EDGES AND SHALL CONFORM TO A.S.T.M. C-36. PROVIDE SQUARE EXTERIOR CORNER BEADS THROUGHOUT. PROVIDE 1/2" WATER RESISTANT GYPSUM WALLBOARD AT ALL 'WET' LOCATIONS. SEAL AND TAPE WALLBOARD, IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. FINISH SHALL BE KNOCK-DOWN. SUPPORTING MEMBERS AT 1" O.C., E.W. ALL DRYWALL TO BE SCREWED TO STUDS.

GUTTER AND DOWNSPOUTS

GUTTER AND DOWNSPOUTS SHALL BE PREFINISHED W/ KYNAR 500 PVDF OR EQUAL.

DRIP EDGE

DRIP EDGE SHALL BE PREFINISHED W/ KYNAR 500 PVDF OR EQUAL.

ROOFING

SPACE SHEATHING 1/8" USE GAF-WEATHER WATCH PRIMARY UNDERLAYMENT WITH 18" LAP & FULL COVERAGE OF ENTIRE ROOF, INCLUDING AREAS COVERED BY SECONDARY UNDERLAYMENT. INSTALL 36" WIDE STRIP @ EAVE & @ HIPS OF STORM GUARD AS SECONDARY UNDERLAYMENT. USE GAF - ELK TIMBERLINE PRESTIGE LIFETIME W/ HIP SHINGLES. TIMBER TEX. INSTALL STARTER COURSE OF SHINGLES SET IN MASTIC BED @ EDGE OF EAVE. LAY FIRST COURSE OF SHINGLES DIRECTLY OVER STARTER STRIP WITH ENDS FLUSH WITH START STRIP. NAIL SHINGLES WITH ZINC-COATED STEEL 10 GAUGE & PENETRATE SHEATHING 3/4" MINIMUM PER THE ENHANCED NAILING PATTERN WITH A MINIMUM OF 6 NAILS. (SEE MANUFACTURER'S INSTALLATION INSTRUCTIONS).

PAINTING

PAINTING MATERIALS SHALL BE EQUAL TO DUNN EDWARDS PAINTS. COMPLETE COVERAGE IS REQUIRED. INITIATION OF PAINTING BY THE PAINTER SHALL BE EVIDENCE THAT HE BELIEVES THAT THE PAINTING MATERIALS ARE SUITABLE AND THAT THE SURFACES ARE PROPERLY PREPARED TO RECEIVE PAINT. COMPLY WITH MANUFACTURER'S RECOMMENDATIONS FOR THINNING & TIME BETWEEN COATS.

PAIN T SCHEDULE (COLORS SELECTED BY OWNERS)

EXTERIOR WORK: (DUNN EDWARDS HIGH QUALITY EXTERIOR - UNLESS PREFINISHED)

TRIM, DOORS, & WINDOW CASEMENTS: SEMI-GLOSS

INTERIOR WORK: (DUNN EDWARDS)

CEILING: WALLBOARD (MAIN ROOMS): T&G SHALL BE STAINED IN SEALED SATIN
TRIM: SEMI-GLOSS
WALLBOARD AT BATHROOMS

PAINT ALL PLUMBING & MECHANICAL ROOF PENETRATIONS TO MATCH ROOF.

GENERAL WALL REQUIREMENTS

1. INSTALL SEAL SEALER AT ALL PLATES AND INSULATE ALL WALLS. CAULK PERIMETER OF G.A.B. @ ALL WALLS.

2. CHINKING:

USE PERMA - CHINK LOG HOME SEALANT @ 8" LOGS AT A THICKNESS OF 1/8" MINIMUM. DO NOT APPLY IN DIRECT SUNLIGHT OR WHEN TEMPERATURES ARE LESS THAN 45 DEGREES. APPLY ONLY THAT QUANTITY OF SEALANT THAT CAN BE TOOLED WITHIN 15 MINUTES. PROTECT FROM RAINFALL FOR 48 HOURS.

STANDARD SYMBOLS LEGEND

DETAIL

A
AS
DETAIL LETTER
SHEET NUMBER

SECTION

C
AS
SECTION LETTER
SHEET NUMBER

SHEET REFERENCE

B
TITLE

ELEVATION (VIEW)

AL
ELEVATION LETTER

ELEVATION (DATUM)

ELEVATION
100'-0"

TYPICAL LINE TYPE LEGEND

NEW CONSTRUCTION
WATER LINE
SEWER LINE
GAS LINE

SHEET INDEX

GENERAL:

G1 - COVER SHEET

SITE:

SPI - SITE PLAN & SITE DETAILS

CIVIL:

1 OF 6 - COVER SHEET
2 OF 6 - GRADING & DRAINAGE PLAN
3 OF 6 - GRADING & DRAINAGE PLAN
4 OF 6 - WATER PLAN
5 OF 6 - SEWER PLAN
6 OF 6 - DRAINAGE & GRADING DETAILS

ARCHITECTURAL:

A1 - STANDARD FLOOR PLANS, SECTION, INTERIOR ELEVATION & DETAILS
A2 - EXTERIOR ELEVATIONS
A3 - REFLECTED CEILING PLAN, ROOF PLAN

ARCHITECTURAL: (CONT.)

A4 - SHADE STRUCTURE FLOOR PLAN, SECTION & DETAILS

STRUCTURAL:

S1 - FOUNDATION PLAN, FRAMING PLAN & DETAILS
S2 - TYPICAL STRUCTURAL DETAILS

PLUMBING

P1 - WATER DISTRIBUTION PLAN, WASTE & VENT DISTRIBUTION PLAN

ELECTRICAL:

E1.0 - ELECTRICAL SITE PLAN
E1.1 - ELECTRICAL PLANS & SCHEDULES
E2.1 - ELECTRICAL ONE LINE DIAGRAM
E3.1 - ELECTRICAL LEGEND, SYMBOLS, AND GENERAL NOTES
E4.1 - ELECTRICAL DETAILS
E5.1 - ELECTRICAL SPECIFICATIONS

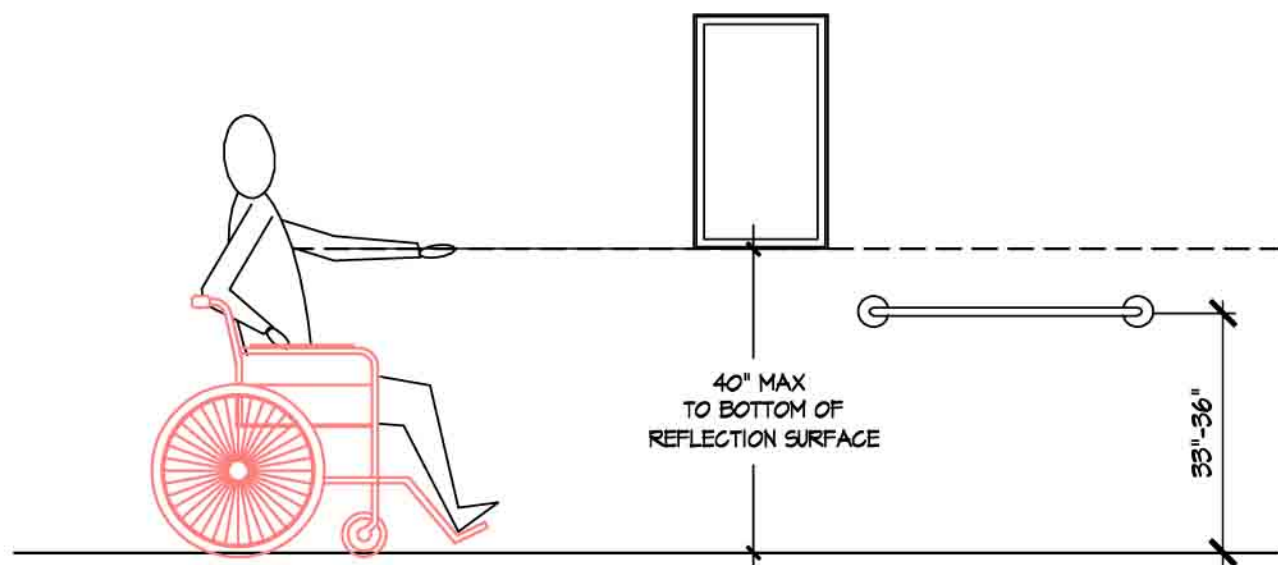
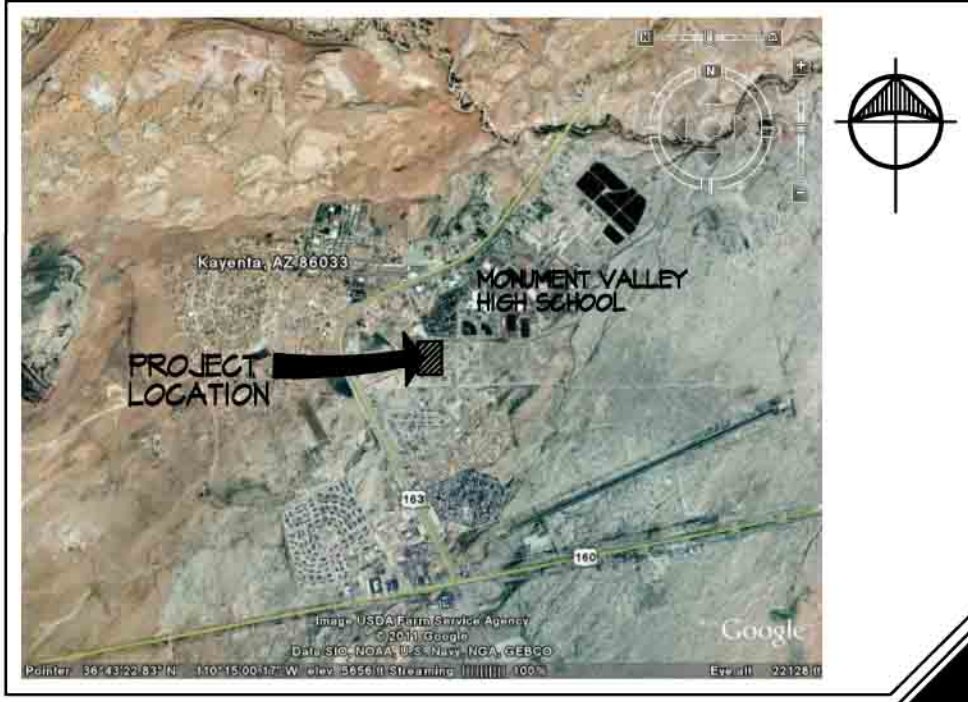
DESIGN CRITERIA

BUILDING CODE	2006 - INTERNATIONAL BUILDING CODE
PLUMBING CODE	2006 - INTERNATIONAL PLUMBING CODE
MECHANICAL CODE	2006 - INTERNATIONAL MECHANICAL CODE
ELECTRICAL CODE	2005 - NATIONAL ELECTRICAL CODE
FUEL & GAS CODE	2006 - INTERNATIONAL FUEL & GAS CODE
GREEN CODE	2010; VERSION 2.0 - INTERNATIONAL GREEN CONSTRUCTION CODE

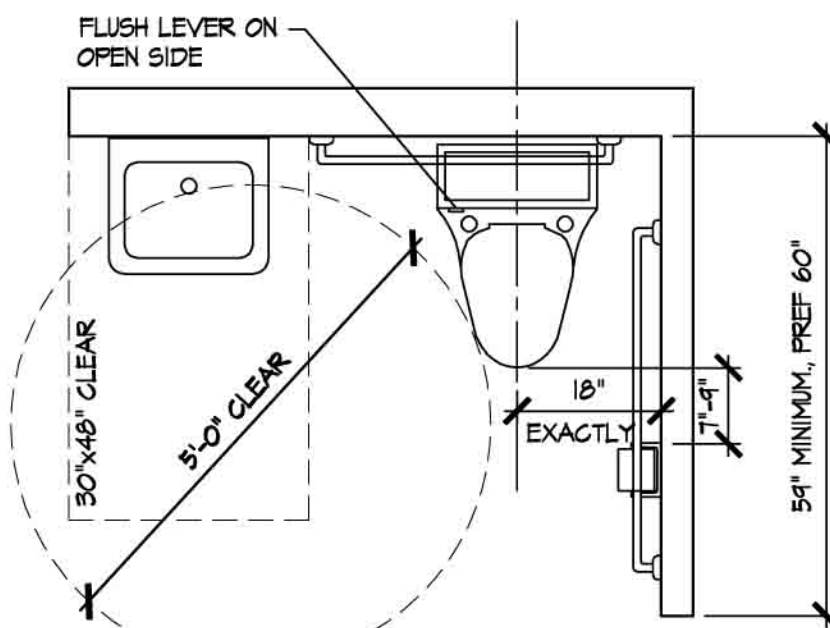
2006 IBC INFORMATION

TYPE OF CONSTRUCTION	V-N
SNOW LOAD	15 PSF
OCCUPANCY	RESIDENTIAL
FROST DEPTH	18" INCHES BELOW GRADE
WIND PRESSURE	90 M.P.H.
ELECTRICAL PHASE	120/240V 1 PHASE

LOCATION MAP



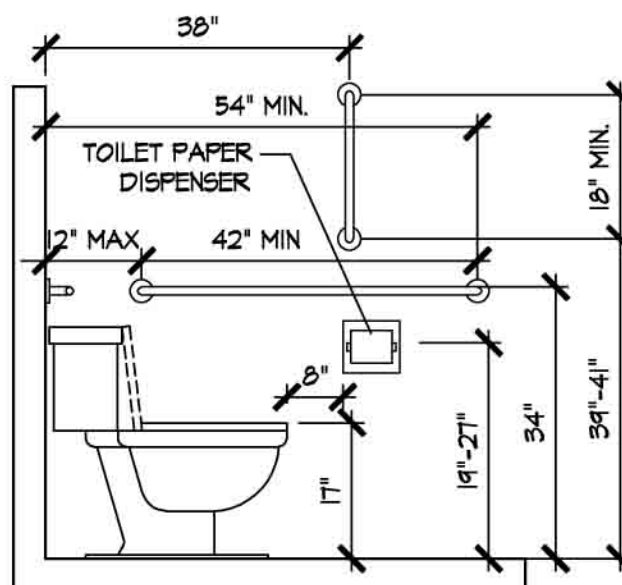
TYPICAL A.D.A.
MOUNTING HEIGHTS FOR
WASHROOM ACCESSORIES



TYP. PLAN: CLEAR FLOOR SPACE AT

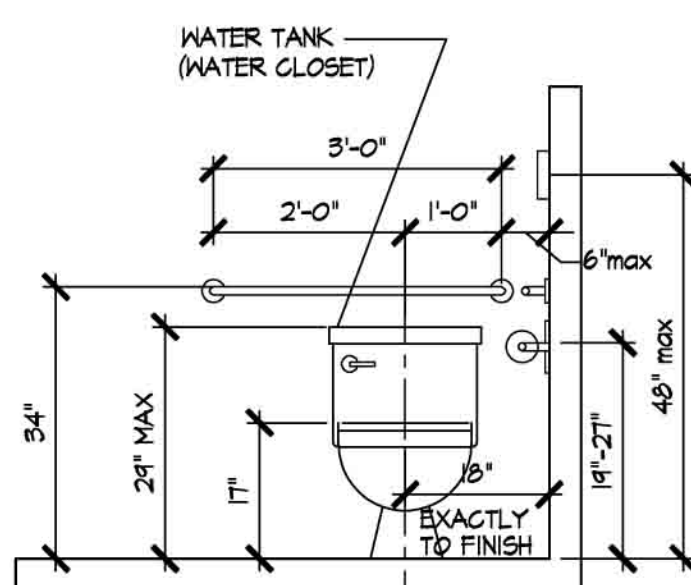
WATER CLOSET TYPE TOILET

NOTE: 5'-0" CLR TURNING DIA. PROVIDES ADEQUATE CLEARANCE FOR FULL ROTATION OF WHEEL CHAIR. 30"x48" CLR FLOOR SPACE BELOW LAV. MAY OVERLAP 5'-0" WHILE STILL PROVIDING ADEQUATE SPACE FOR WATER CLOSET SIDE TRANSFER.



WATER CLOSET TYPE TOILET : SIDE VIEW

NOTE: NOTE GRAB BAR POSITION; NOTE TOILET PAPER DISPENSER IS BELOW GRAB BAR, SEAT COVER IS ABOVE



WATER CLOSET TYPE TOILET : FRONT VIEW

NOTE: FLUSH LEVER SHOULD BE ON THE OPEN SIDE SEE SIDE ELEVATION FOR SIDE GRAB BAR LOCATION

LOREN V. SADLER
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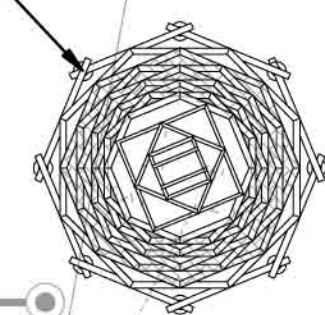
REGISTERED ARCHITECT
STATE OF ARIZONA
20067
LOREN V. SADLER
DATE SIGNED: 01/26/12
EXPIRATION: 01/26/13

Revisions:
DATE: 01/26/12
JOB NO: 11-028

GUEST HOGANS
for N.A.T.I.V.E.
KAYENTA, ARIZONA 86033
COVER SHEET



- HOGAN SHADE STRUCTURE LOCATION,
SEE SHEET A4 FOR ADDITIONAL
INFORMATION



LOREN V. SADLER
ARCHITECT, INC.

6047
 788-0250
 80033
 GUEST HOGANS
 for N.A.T.I.V.E.
 KAYENTA, ARIZONA
 SITE PLAN AND DETAILS

SPI

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GENERAL NOTES

1. BASIS OF BEARING AND THE BASIS OF ELEVATION ARE PER TOPOGRAPHIC SURVEY OF NEW N.A.T.I.V.E. TRACT IN THE KAYENTA TOWNSHIP JOB NO. 09-08, DATED SEPTEMBER 29, 2009, A DIGITAL SURVEY DONE BY EXTREME MEASURES LAND SURVEYS, INC.
2. BASIS OF BEARING IS THE SOUTH LINE OF THE SCHOOL PROPERTY.
3. BASIS OF ELEVATION IS KAY 16--COORDINATES PROVIDED BY DON JACKSON OF THE KAYENTA TOWNSHIP ENGINEERING DEPARTMENT.
4. A COPY OF THESE APPROVED PLANS SHALL BE KEPT IN AN EASILY ACCESSIBLE LOCATION ON THE CONSTRUCTION SITE AT ALL TIMES DURING CONSTRUCTION.
5. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS.
6. ALL MINOR OBSTRUCTIONS MAY NOT BE SHOWN ON PLANS. THE CONTRACTOR SHALL VISIT THE SITE AND DETERMINE THE ACTUAL CONDITIONS WITH REGARD TO THE EXISTENCE OF FENCES, DRIVEWAYS, TREES, SIDEWALKS, CULVERTS, UTILITIES AND OTHER MISCELLANEOUS OBSTACLES THAT MAY INTERFERE WITH CONSTRUCTION PRIOR TO SUBMITTING BIDS.
7. IF UNANTICIPATED SITE CONDITIONS ARE ENCOUNTERED DURING THE COURSE OF CONSTRUCTION OR OMISSIONS AND/OR CONFLICT BETWEEN VARIOUS ELEMENTS OF CONSTRUCTION DRAWINGS, NOTES, AND/OR DETAILS, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD IMMEDIATELY UPON BECOMING AWARE OF SUCH CONDITIONS, OMISSIONS AND/OR CONFLICTS AND WORK SHALL CEASE AND NOT PROCEED IN THE AREA OF CONCERN UNTIL AUTHORIZED BY THE ENGINEER OF RECORD.
8. THE INFORMATION REGARDING THE TYPE, SIZE, AND LOCATION OF UTILITIES IS SHOWN BASED ON BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING EXACT LOCATIONS AND ELEVATIONS OF ALL UTILITIES FROM THE OWNERS OF RESPECTIVE UTILITIES. ALL UTILITY COMPANIES SHALL BE NOTIFIED AT LEAST 72 HOURS PRIOR TO EXCAVATION. CONTRACTOR SHALL NOTIFY THE OWNER OR HIS AUTHORIZED REPRESENTATIVE OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH WORK AND SHALL PROTECT ALL EXISTING UTILITIES THROUGH THE DURATION OF CONSTRUCTION. NO ASSURANCE IS HEREBY GIVEN THAT ALL EASEMENTS OR UTILITIES ARE COMPLETELY OR ACCURATELY DEPICTED.
9. ANY AMBIGUITIES OR DEFICIENCIES DISCOVERED ON THESE PLANS ARE TO BE RESOLVED BY ARROWHEAD ENGINEERING, INC.. ANYONE ELSE WHO MODIFIES THE PLANS OR THE DESIGNS ON THEM OR RESOLVES AMBIGUITIES OR DEFICIENCIES BECOMES RESPONSIBLE FOR HIS OR HER MODIFICATIONS OR DECISION.
10. UTILITY INFORMATION SHOWN ON THESE PLANS ARE PROVIDED BY K.U.S.D. FACILITY MANAGEMENT. THE ENGINEER MAKES NO GUARANTEE REGARDING THE LOCATION OR ELEVATION OF EXISTING UTILITIES SHOWN ON THESE PLANS. THE CONTRACTOR SHALL CALL BLUE STAKE FOR ALL UTILITIES.
11. CONTRACTOR SHALL GIVE A MINIMUM OF FORTY-EIGHT (48) HOURS NOTICE BEFORE HE REQUIRES HORIZONTAL OR VERTICAL LAYOUT OF ANY PORTION OF THE WORK. HE SHALL ALSO DIG ALL STAKE HOLES NECESSARY TO GIVE LINES AND LEVELS. MEASUREMENTS OF THE WORK SHALL REMAIN IN THEIR PROPER PLACES UNTIL AUTHORIZED TO REMOVE THEM BY THE ENGINEER OF RECORD OR HIS AGENT. ANY EXPENSE INCURRED IN REPLACING ANY STAKES THAT THE CONTRACTOR OR HIS SUBORDINATES MAY HAVE FAILED TO PRESERVE SHALL BE CHARGED TO THE CONTRACTOR.
12. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FURNISH, HAUL, AND APPLY ALL WATER REQUIRED FOR COMPACTION AND FOR THE CONTROL OF DUST FROM CONSTRUCTION ACTIVITY. THE COST THEREOF IS TO BE INCLUDED IN THE CONSTRUCTION PRICE.
13. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HAVE A REGISTERED SOILS ENGINEER OBSERVE, INSPECT, AND TEST ALL EARTHWORK PREPARATION. EARTHWORK PREPARATION IS REGARDED AS (BUT NOT LIMITED TO) STRUCTURAL AND TRENCH EXCAVATION, BACKFILL, AND TOGETHER WITH THE PLACEMENT OF FILL MATERIAL AND ITS SUBSEQUENT COMPACTION.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CARE, MAINTENANCE, REPAIR OR REPLACEMENT OF ANY EXISTING IMPROVEMENT IN THE WORK AREA WHICH BECOMES DAMAGED OR IS REMOVED DURING THE COURSE OF CONSTRUCTION. ALL REPAIR, REPLACEMENT, OR CLEANUP SHALL BE DONE TO THE SATISFACTION OF THE OWNER.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING A TRAFFIC CONTROL PLAN THAT MEETS THE REQUIREMENTS OF THE MUTCD (LATEST EDITION WITH SUPPLEMENTS) AND THE OWNER'S AUTHORIZED REPRESENTATIVE. THE CONTRACTOR SHALL PROPERLY MAINTAIN THIS PLAN FOR ALL WORK WITHIN THE N.A.T.I.V.E. CAMPUS PROPERTY.
16. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS, GRADES AND POTHOLE EXISTING UTILITY LOCATIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION. ALL DISCREPANCIES AND DEVIATIONS FROM EXISTING SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGN ENGINEER PRIOR TO START OF CONSTRUCTION.
17. QUANTITIES SHOWN THROUGHOUT THESE DRAWINGS AND SPECIFICATIONS ARE APPROXIMATE. THEY SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR INDEPENDENTLY ESTIMATING BID OR WORK QUANTITIES.
18. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH THE CURRENT "MAG UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION" AND WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICE. ALL WORK AND MATERIALS WHICH DO NOT CONFORM TO THE STANDARDS AND SPECIFICATIONS ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
19. ANY WORK PERFORMED WITHOUT THE KNOWLEDGE AND APPROVAL OF THE OWNER OR HIS AUTHORIZED REPRESENTATIVE IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
20. THE OWNER OR HIS AUTHORIZED REPRESENTATIVE MAY SUSPEND THE WORK BY WRITTEN NOTICE WHEN, IN HIS JUDGMENT, PROGRESS IS UNSATISFACTORY, WORK BEING DONE IS UNAUTHORIZED OR DEFECTIVE, WEATHER CONDITIONS ARE UNSUITABLE, OR THERE IS DANGER TO THE PUBLIC HEALTH OR SAFETY.
21. THE OWNER MAY ORDER ANY AND ALL MATERIALS USED IN THE WORK TO BE TESTED ACCORDING TO THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) AND THE AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM) STANDARDS. THE CONTRACTOR SHALL, AT HIS EXPENSE, SUPPLY ALL SAMPLES REQUIRED FOR TESTING.
22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE PAVEMENT AND OF PARTIALLY COMPLETED PORTIONS OF THE WORK UNTIL FINAL ACCEPTANCE OF THE WORK. THE CONTRACTOR SHALL SUBMIT TO THE OWNER OR HIS AUTHORIZED REPRESENTATIVE FOR APPROVAL A CONSTRUCTION SCHEDULE FOR ANY STREETS REQUIRED TO BE CLOSED OR PARTIALLY CLOSED FOR THE CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL REOPEN THE STREETS NO LATER THAN THE OPENING DATE SHOWN ON THE CONSTRUCTION SCHEDULE OR UPON ORDER OF THE OWNER OR HIS AUTHORIZED REPRESENTATIVE. THE REGULATION AND CONTROL OF CONSTRUCTION TRAFFIC SHALL BE AS DIRECTED BY THE OWNER OR HIS AUTHORIZED REPRESENTATIVE.
23. APPROVAL OF A PORTION OF THE WORK IN PROGRESS DOES NOT GUARANTEE ITS FINAL ACCEPTANCE. TESTING AND EVALUATION MAY CONTINUE UNTIL WRITTEN FINAL ACCEPTANCE OF A COMPLETE WORKABLE UNIT. ANY DEFECTS WHICH APPEAR IN THE WORK WITHIN ONE YEAR FROM THE DATE OF ACCEPTANCE AND WHICH ARE DUE TO IMPROPER WORKMANSHIP OR INFERIOR MATERIALS SUPPLIED SHALL BE CORRECTED BY OR AT THE EXPENSE OF THE OWNER OR THE CONTRACTOR.
24. ACCEPTANCE OF COMPLETED IMPROVEMENTS WILL NOT BE GIVEN UNTIL DEFECTIVE OR UNAUTHORIZED WORK IS REMOVED, AND FINAL CLEAN-UP IS COMPLETE.
25. LOCATION OF UNDERGROUND UTILITIES BEFORE WORK IS BEGUN IS TO BE ACCOMPLISHED IN ACCORDANCE WITH ARS 40-360.22.
26. THE ESTABLISHMENT AND USE OF TEMPORARY CONSTRUCTION YARDS SHALL RECEIVE PRIOR APPROVAL FROM THE OWNER OR HIS AUTHORIZED REPRESENTATIVE.
27. ALL EXCAVATED MATERIAL SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE KAYENTA TOWNSHIP CODES AND REGULATIONS. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED KAYENTA TOWNSHIP'S APPROVALS AND PERMITS, AS DEEMED NECESSARY BY THE KAYENTA TOWNSHIP, TO DISPOSE OF EXCAVATED MATERIAL.
28. ALL CONSTRUCTION STAKING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND PERFORMED UNDER THE DIRECT SUPERVISION OF A REGISTERED LAND SURVEYOR OR CIVIL ENGINEER.
29. CONTRACTOR MUST COORDINATE WITH GAS UTILITY COMPANY/PROVIDER TO EXTEND SERVICES TO BUILDINGS.

EARTHWORK

1. CONTRACTOR SHALL FOLLOW RECOMMENDATIONS FROM WESTERN TECHNOLOGIES, INC. JOB NO. 3129JS056, DATED 10-20-09 AND JOB NO. 3129JS075, DATED 1-12-10.
2. GENERAL -- THE CONTRACTOR SHALL ACCEPT REASONABLE VARIATIONS IN SITE CONDITIONS. NO EXTRA PAYMENT SHALL BE ALLOWED FOR REMEDIATION OF SUBGRADE MATERIALS DUE TO HIGH MOISTURE CONTENT OR POCKETS OF OVERLY PLASTIC MATERIALS WHICH CAN BE REMEDIATED THROUGH MIXING WITH ON SITE MATERIALS, AS DETERMINED BY THE ENGINEER. IF REMOVAL AND REPLACEMENT OF MATERIAL IS REQUIRED, A CHANGE ORDER WILL BE ISSUED AT THE DISCRETION OF THE OWNER, WITH PAYMENT BASED UPON PREDETERMINED UNIT COSTS.
3. NO FILL SHALL BE PLACED OVER FROZEN GROUND OR ON-SITE CLAY. IMPORTED AND ON-SITE SOIL SHALL BE COMPACTED WITHIN A WATER CONTENT RANGE OF 3 PERCENT BELOW TO 3 PERCENT ABOVE OPTIMUM WATER CONTENT.
4. SUBGRADE PREPARATION -- SCARIFY, PREPARE TO PROPER MOISTURE CONTENT, AND RE-COMPACT TO A MINIMUM DEPTH OF 8 INCHES PRIOR TO PLACEMENT OF FILL AND ROAD MATERIALS.
5. IMPORT SOILS -- IMPORTED SOILS SHALL CONFORM TO THE FOLLOWING IN ACCORDANCE WITH THE SOILS REPORT:

GRADATION (ASTM C136)	PERCENT FINER BY WEIGHT
SIEVE SIZE (% FINER BY WEIGHT)	(% PASSING)
6"	100
4"	85-100
3/4"	70-100
NO. 4 SIEVE	50-100
NO. 200 SIEVE	40 (MAX)
MAXIMUM EXPANSIVE POTENTIAL (%)	1.50
MAXIMUM SOLUBLE SULFATES (%)	0.10

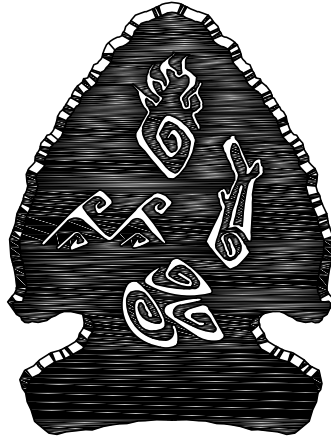
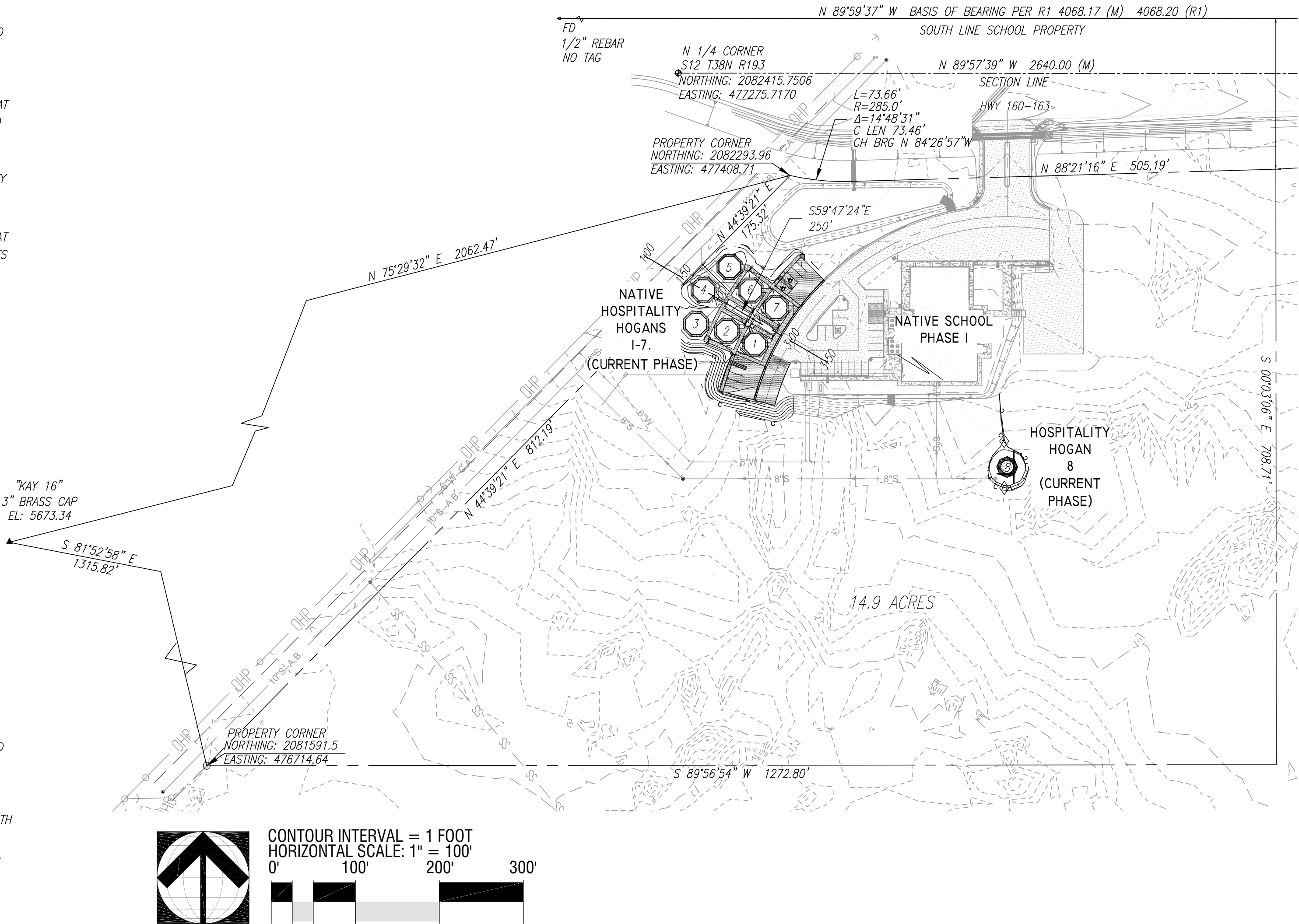
MEASURED ON A SAMPLE COMPACTED TO APPROXIMATELY 95 PERCENT OF THE ASTM D698 MAXIMUM DRY DENSITY AT ABOUT 3 PERCENT BELOW OPTIMUM WATER CONTENT. THE SAMPLE IS CONFINED UNDER A 100 PSF SURCHARGE AND SUBMERGED.

WATER NOTES

1. NTUA RECOMMENDS THAT THE NEW WATERLINE BE CONNECTED TO EXISTING WATERLINE AT MINIMAL OUTAGE TIME AND ONE TIME ONLY. PRIOR TO CONSTRUCTING THE CONNECTION, THE CONTRACTOR SHALL NOTIFY THE LOCAL NTUA DISTRICT OFFICE AT LEAST THREE DAYS IN ADVANCE AND SHOULD BE PRESENT DURING THE TAP, SAMPLING AND PRESSURE TESTING. CONNECTION TO EXISTING WATERMAIN SHALL BE AS SPECIFIED IN NTUA TECHNICAL PROVISIONS, SECTION 3.02.03, CONNECTIONS TO EXISTING MAIN. ALL TEES, ELBOWS, COUPLINGS, GATE VALVES, AND FIRE HYDRANTS ON THE WATER MAIN SHALL USE MEGA LUGS RESTRAINING COLLARS AS REQUIRED.
2. NTUA RECOMMENDS AT LEAST SDR-21, 200 PSI PVC FOR THE WATER MAIN THROUGHOUT THE PROJECT FROM THE TAP POINT TO THE FIRE HYDRANT IF INCLUDED AND TO THE END OF THE LINES. ALL FITTINGS AND VALVES SHALL MEET OR EXCEED THE PIPE PRESSURE CLASS. FIRE HYDRANTS SHALL BE INSTALLED ACCORDING TO NTUA DETAIL DRAWING NO. WS-12 AND WS-12A. HOWEVER, NTUA DOES NOT GUARANTEE FIRE PROTECTION FLOWS. IF THE WATER SYSTEM DOES NOT PROVIDE THE CUSTOMER'S FIRE FLOW REQUIREMENTS UPON PROJECT COMPLETION OR THEREAFTER, THE CUSTOMER SHALL INITIATE SYSTEM IMPROVEMENTS AT THEIR EXPENSE AND MUST HAVE PRIOR APPROVAL BY NTUA. BUILDING PLUMBING, WATER AND SEWER SERVICES TO BE INSTALLED IN ACCORDANCE WITH THE NATIONAL PLUMBING CODE ADOPTED BY THE NAVAJO NATION.
3. THE MINIMUM HYDRAULIC REQUIREMENTS FOR FIRE HYDRANT INSTALLATION ARE 250 GPM AT 20 PSI (PRESSURE MEASURED AT NOZZLE). FIRE HYDRANTS ARE TO BE INSTALLED ON 4-INCH DIAMETER AND LARGER MAINS AND ONLY AT LOCATIONS WHERE THEY ARE OBVIOUSLY REQUIRED (I.E., AMONG DENSE GROUPS OF HOUSING, A CHAPTER HOUSE COMPOUND OR IN A COMMERCIAL DEVELOPMENT). TWO-INCH FLUSH VALVES ARE INSTALLED TO FLUSH WATER MAINS AS A PART OF ROUTINE MAINTENANCE. A STANDARD 2-INCH FLUSH VALVE IS TO BE INSTALLED ON 2-INCH WATER MAINS AND ON 4-INCH AND LARGER WATER MAINS THAT CANNOT PRODUCE THE STATED MINIMUM FIRE FLOW OR ALONG LINES IN STRICTLY RURAL SETTINGS. HYDRANTS AND FLUSH VALVES SHALL BE INSTALLED IN ACCORDANCE WITH THE STANDARD DETAILS.
4. WATER SUPPLY FOR FIRE PROTECTION (FIRE FLOW) IS REQUIRED TO BE INSTALLED AND MADE SERVICEABLE PRIOR TO COMBUSTIBLE MATERIALS ARRIVING ON SITE.
5. THE DEVELOPER IS RESPONSIBLE FOR BLUE REFLECTIVE STREET MARKERS AT EACH HYDRANT LOCATION.
6. THE CENTER OF THE LARGE DIAMETER HOSE OUTLET SHALL BE NOT LESS THAN 18 IN. ABOVE FINAL GRADE.
7. A 3 FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF FIRE HYDRANTS.
8. WHERE FIRE HYDRANTS ARE SUBJECT TO IMPACT BY MOTOR VEHICLE, GUARD POST OR OTHER APPROVED MEANS SHALL BE PROVIDED.
9. THE HYDRANT SHALL BE CLEARLY MARKED OR TAGGED AS OUT OF SERVICE. WHILE WATER LINES ARE UNDERGOING BACTERIAL CLEANSING AND TESTING, THE HYDRANT SHALL BE MARKED AS OUT OF SERVICE. THE OUT OF SERVICE MARKING AND TAG SHALL REMAIN UNTIL THE HYDRANT HAS BEEN INSPECTED BY THE DEVELOPER, APPROVED BY THE WATER UTILITY, AND IS IN SERVICE. THE WATER UTILITY WILL NOTIFY THE FIRE MARSHALL WHEN THE HYDRANT IS IN SERVICE AND IS AVAILABLE FOR FIRE FLOW TESTING.
10. WATER SERVICES SHALL HAVE A MINIMUM COVER OF 36" AND SHALL BE INSTALLED IN CONFORMANCE WITH NTUA STANDARDS.
11. SADDLES SHALL BE SINGLE STRAP/BAND TYPE. FOR STEEL PIPE O.D. PVC. SADDLES SHALL BE DOUBLE STRAP/BAND TYPE, FOR D.I., A.C., OR C-900 PIPE. ON EXISTING 2" PIPING, A 2" X 1" PVC TEE SHALL BE USED. CONTACT NTUA HEADQUARTERS ENGINEERING ON PIPING SMALLER THAN 2".
12. THE WATER METER SHALL BE CENTERED AND SET A MAX OF 24" BELOW THE TOP OF THE METER BOX COVER.
13. THE METER CAN SHALL BE LOCATED JUST BEYOND THE SIDEWALK AT THE PROPERTY LINE OR WITH OWNER'S PERMISSION A MINIMUM OF 10' FROM THE BUILDING.
14. THE POTABLE WATER SERVICE LINE IS TO BE CONSTRUCTED OF 200 PSI 3-INCH PVC PIPE. THE FIRE FLOW SERVICE LINE IS TO BE CONSTRUCTED OF 200 PSI 6-INCH PVC PIPE.
15. CONTRACTOR SHALL PLACE NTUA WARNING TAPE, MARKER POSTS, AND DECALS AS REQUIRED PER NAVAJO AREA STANDARDS AND CONSTRUCTION REQUIREMENTS TECHNICAL SPECIFICATIONS FOR MATERIALS AND WORKMANSHIP FOR WATER AND WASTEWATER FACILITIES MOST CURRENT EDITION. WATER LINE AND DIRECTION SHALL BE INDICATED ON CEMENT COLLARS AT VALVE LOCATIONS.
16. THRUST BLOCKS SHALL BE INSTALLED AS NECESSARY IN ACCORDANCE WITH NTUA STANDARD WS-19 AND WS-19a.
17. ALL FITTINGS SHALL INCLUDE MEG-A-LUG JOINT RESTRAINTS IN ADDITION TO THE REQUIRED THRUST BLOCKING OR AS PERMITTED BY NTUA.
18. ALL PIPING COMPONENTS SHALL BE NSF STND. #14 & #61 APPROVED AND WILL BE INSTALLED AS PER NTUA SPECIFICATIONS.
19. ALL DUCTILE IRON FITTINGS WILL CONFORM WITH AWWA C110 AND C111 SPECIFICATIONS. VALVES WILL BE FURNISHED WITH AN ADJUSTABLE VALVE BOX AND COVER CONFORMING TO NTUA STANDARD WS-14. PRESSURE TESTING SHALL BE IN ACCORDANCE WITH NAVAJO AREA INDIAN HEALTH SERVICE DESIGN CRITERIA AND NAVAJO AREA STANDARDS AND CONSTRUCTION REQUIREMENTS TECHNICAL SPECIFICATIONS FOR MATERIALS AND WORKMANSHIP FOR WATER AND WASTEWATER FACILITIES, MOST CURRENT EDITIONS. DISINFECTION OF THE WATER LINES SHALL CONFORM TO ADEQ ENGINEERING BULLETIN NUMBER 8 AND NAVAJO AREA INDIAN HEALTH SERVICE DESIGN CRITERIA AND NAVAJO AREA STANDARDS AND CONSTRUCTION REQUIREMENTS TECHNICAL SPECIFICATIONS FOR MATERIALS AND WORKMANSHIP FOR WATER AND WASTEWATER FACILITIES MOST CURRENT EDITIONS. NOTIFY NTUA 48 HRS IN ADVANCE TO ALL SYSTEM INTERRUPTIONS.
21. ALL AFFECTED WATER COMPANY CUSTOMERS WILL BE NOTIFIED BY NTUA 24 HRS BEFORE INTERRUPTION.
22. TRENCHING CONTRACTOR/APPLICANT SHALL PERFORM ALL WORK IN ACCORDANCE WITH TRENCH DETAIL AND SUPPLEMENTAL GENERAL SPECIFICATIONS INCLUDED IN NAVAJO AREA INDIAN HEALTH SERVICE DESIGN CRITERIA AND NAVAJO AREA STANDARDS AND CONSTRUCTION REQUIREMENTS TECHNICAL SPECIFICATIONS FOR MATERIALS AND WORKMANSHIP FOR WATER AND WASTEWATER FACILITIES MOST CURRENT EDITIONS.
23. CONTRACTOR OR TRENCHING OPERATOR IS RESPONSIBLE FOR NOTIFYING NTUA DISTRICT OFFICE AT 1-928-697-3574 TWO WORKING DAYS PRIOR TO DIGGING.
24. TRENCHING CONTRACTOR IS NOT TO EXCAVATE WITHIN 5 FEET OF EXISTING WATER MAINS UNLESS NTUA WATER CREWS ARE PRESENT.
25. ONLY AUTHORIZED NTUA PERSONNEL MAY OPERATE SYSTEM VALVES. WATER AND SEWER LINE SEPARATIONS SHALL CONFORM TO NAVAJO AREA INDIAN HEALTH SERVICE DESIGN CRITERIA AND NAVAJO AREA STANDARDS AND CONSTRUCTION REQUIREMENTS TECHNICAL SPECIFICATIONS FOR MATERIALS AND WORKMANSHIP FOR WATER AND WASTEWATER FACILITIES, MOST CURRENT EDITIONS.
26. ALL METER VAULTS SHALL BE LOCATED IN THE EASEMENTS, AT THE PROPERTY LINE. METER VAULT INSTALLATION LOCATION SHALL BE DISCUSSED AT THE PRE-CONSTRUCTION MEETING AND FINAL LOCATION SHALL BE APPROVED BY NTUA WATER CREW.
27. THE OWNER MUST PROVIDE ALL CONTRACTORS WITH A COPY OF THE CONSTRUCTION PLANS.

SEWER NOTES

1. ALL SEWER PIPES SHALL BE MADE OF MATERIAL CONFORMING TO REQUIREMENTS OF ASTM D1784, TYPE I, GRADE I FOR RIGID POLYVINYL CHLORIDE COMPOUNDS. ALL SEWER PIPES AND FITTINGS SHALL BE AT LEAST SDR 35, TYPE PSM WITH ELECTROMERIC GASKET JOINTS MEETING THE REQUIREMENTS OF ASTM D 3034. SERVICE CONNECTIONS TO NEW SEWER MAINS SHALL BE WYE FITTINGS.
2. SEWER CLEANOUTS ARE REQUIRED ON ALL BENDS IN EXCESS OF 45 DEGREES AS PER PLUMBING CODE ADOPTED BY THE NAVAJO NATION. MODIFY MATERIAL LIST ACCORDINGLY AFTER CONSULTING WITH N.T.U.A. HEADQUARTERS ENGINEERING.
3. ADDITIONAL SEWER CLEANOUTS ARE REQUIRED ON SEWER SERVICES LONGER THAN 50 FT. AS PER UNIFORM PLUMBING CODE ADOPTED BY THE NAVAJO NATION. MODIFY MATERIAL LIST ACCORDINGLY AFTER CONSULTING WITH N.T.U.A. HEADQUARTERS ENGINEERING. EACH ADDITIONAL CLEANOUT IS AT THE CUSTOMERS EXPENSE INSTALL AT LEAST ONE CLEANOUT AS REQUIRED. IF CUSTOMER REQUEST FEWER AND REALIZED ITS VIOLATES NAVAJO TRIBAL CODE, THEN INSTALL PER THE CUSTOMER'S REQUEST AND SO NOTE ON THE INDIVIDUAL AS-BUILT, N.T.U.A. RECOMMENDS THAT CLEANOUTS BE SPACED NO MORE THAN 100'.
4. PROVIDE PROPOSED ELEVATION AT WALL. PROVIDE 6 IN. DIAMETER SLEEVE IF PIPING PENETRATES WALL OR 4 IN. DEPTH OF SAND BETWEEN FOOTING AND TOP OF PIPING IS BELOW THE FOOTING. ORDER ASTM D-1785 SCH. 40 PIPE WITH LENGTH AS NEEDED FOR THE SLEEVE. CONTACT N.T.U.A. HEADQUARTERS ENGINEERING ON PIPING SMALLER THAN 2 IN. IN SIZE.
5. MINIMUM SLOPE OF 1/8 INCH PER FOOT (2%) OR CONTACT N.T.U.A. HEADQUARTERS ENGINEERING.
6. BACKFILL IS TO BE HAND TAMPED (NO MECHANICAL) AND COMPACTED IN 6 INCH LAYERS FOR AT LEAST 12 IN. ABOVE PVC PIPE. INSTALL PER ASTM D-2321 AND UNIFORM PLUMBING CODE ADOPTED BY NAVAJO NATION.
7. NEW SEWER SERVICES SHALL BE INSTALLED WITH 36" OF MINIMUM COVER PER NTUA TECHNICAL SPECIFICATION 4.04.01, UNLESS OTHERWISE INDICATED ON THESE PLANS.
8. ALL NEWLY CONSTRUCTED LINES ARE REQUIRED TO BE CLAMPED AND TESTED FOR EXFILTRATION. TESTING IS TO BE CONDUCTED AS NAVAJO AREA STANDARDS AND CONSTRUCTION REQUIREMENTS TP 4.08. THE ENGINEER IS REQUIRED TO COMPLETE THE CERTIFICATION FORMS AS APPROPRIATE. THE COMPLETED FORMS ARE TO BE FORWARDED BY THE ENGINEER TO THE NTUA HEADQUARTERS, SPECIAL PROJECT DEPARTMENT, FOR REVIEW AND APPROVAL. A LETTER OF ACCEPTANCE OF THE TEST RESULTS WILL BE FORWARDED FROM THE NTUA HEADQUARTERS TO THE DISTRICT ENGINEER.
9. BEFORE TAPPING AN EXISTING MANHOLE, A TAPPING PERMIT MUST BE ACQUIRED. SERVICE TAPS FOR NEW CONSTRUCTION SHALL BE CONSTRUCTED WITH GASKETED WYES. EXISTING LINES MAY BE TAPPED WITH GASKETED WYE FITTINGS USING STAINLESS STEEL CLAMPS.
10. MANHOLES ARE TO BE TESTED FOR WATER TIGHTNESS. EACH MANHOLE IS TO BE TESTED BY ITSELF. THAT IS, A SEWER MAIN AND MANHOLE MAY NOT BE TESTED AT THE SAME TIME. TESTING IS TO BE CONDUCTED AS PER NAVAJO AREA STANDARDS AND CONSTRUCTION REQUIREMENTS TP 4.09.
11. THE MATERIAL LIST SHALL BE MODIFIED IF A FIELD MARKER OF THE TAP POINT IS TO BE INSTALLED. UNDER THE AS-BUILT TIE INFORMATION. PROVIDE THE SURFACE DESCRIPTION OF THE TAP POINT (e.g. OPEN FIELD, PAVED ROAD, etc.)



ARROWHEAD
ENGINEERING, INC.

1685 S. SAN TODARO PLACE
TUCSON, ARIZONA 85713
PHONE: 520-822-7702
FAX: 520-777-3438



COVER SHEET
NATIVE NEW VOC. HIGH SCHOOL

HOGANS
THE PROJECT IS LOCATED IN A PORTION
SECTION 12, T-38-N, R-19-E, G&S.R.B.&M.
NAVAJO COUNTY, ARIZONA

SHEET
1 OF 6

NOTES OF PLANNING AUTHORIZATION: THIS PLANNING IS A COPYRIGHT PROTECTED DOCUMENT PROVIDED BY COMPUTER AIDED DESIGN AND DRAFTING TECHNOLOGIES. MULTIPLE AND/OR UNAUTHORIZED COPIES OF DRAWING OR ITS DATA FILES WITHOUT THE APPROPRIATE AUTHORIZED SIGNED REGISTERED PROFESSIONAL ENGINEER'S SEAL AND/OR WRITTEN PERMISSION BY ARROWHEAD ENGINEERING, INC. IS PROHIBITED AND WILL BE AT THE USER'S RISK AND FULL LEGAL RESPONSIBILITY. Plotfile: Jan 25, 2012 \\192.168.1.10 guest-shore\nATIVE_HOGANS\ENGINEERING\NATIVE_HOGAN_BASE.dwg

LEGEND

- EXISTING UTILITY EASEMENT
- EXISTING WATER LINE
- EXISTING SEWER LINE
- PROPERTY BOUNDARY
- CENTERLINE OF ROAD
- FLOW LINE
- PROPOSED SEWER PIPE & CLEANOUT
- PROPOSED WATER PIPE
- EXISTING GRADE
- PROPOSED FINISH GRADE
- PROPOSED GRADE AT TOP OF CURB
- PROPOSED GRADE AT TOP OF SIDEWALK
- PROPOSED GRADE AT FLOWLINE
- PROPOSED GRADE AT INVERT OF PIPE
- PROPOSED GRAVEL
- PROPOSED CONCRETE
- TRUNCATED DOMES
- 2" BACK FLOW PREVENTER
- DOMESTIC STOP
- D50 6" RIP RAP
- SIDEWALK SCUPPER
- KEYNOTE
- FLOW ARROW

GENERAL CONSTRUCTION NOTES:
ALL CLEARING AND GRUBBING, EXCAVATION, FILL, GRADING, BERM, SWALE, AND DITCH CONSTRUCTION IS INCIDENTAL TO CONSTRUCTION AND SHALL BE CONSTRUCTED TO GRADES AND LINES SHOWN, EVEN IF NOT SPECIFICALLY NOTED AS A WORK ITEM.

GENERAL NOTES

- CONTRACTOR TO PLACE FILL PER WESTERN TECHNOLOGIES INC. REPORT NO. 3129J5056 DATED 10-20-09 AND REPORT NO. 3129J5075 DATED 1-12-10.
- REMOVE EXISTING CURB AND GUTTER. CONTRACTOR TO SAW CUT EXISTING CURB AND GUTTER AT CLOSEST CONTROL JOINT.
- CONSTRUCT 4" 4500 PSI CONCRETE PAD FOR BACKFLOW PREVENTION DEVICE. DIMENSIONS PER BOX MANUFACTURER SPECIFICATIONS. CONCRETE PAD SHALL BE PLACED FLUSH IN ELEVATION AND ADJOINED WITH BACK OF SIDEWALK.
- INSTALL 20' X 20' CONCRETE SLAB. RECOMMENDED SLAB SECTION THICKNESS IS 6" ON TOP OF 4" OF ABC ON TOP OF 12" OF PREPARED SUBBASE FILL. COMPACTION OF SUBBASE FILL AND BASE COURSE MATERIALS SHOULD BE ACCOMPLISHED TO A MINIMUM 95% OF STANDARD PROCTOR. SLAB ON GRADE SHALL BE 4500PSI.

PAVING NOTES

- INSTALL GRAVEL SECTION PER DTL 1 SHT 6.
- INSTALL ROLL CURB AND GUTTER PER MAG DTL 220 TYPE 'C'.
- INSTALL CURB TRANSITION PER MAG DTL. 221.
- INSTALL SIDEWALK PER DTL 5 SHT 6. WIDTH PER PLANS.
- INSTALL SIDEWALK RAMP PER DTL 2 SHT 6.

WATER NOTES

NONE THIS SHEET. SEE SHEET 4.

SEWER NOTES

NONE THIS SHEET. SEE SHEET 5.

DRAINAGE NOTES

- INSTALL 6" SCUPPER PER DETAIL 3 SHEET 6.
- INSTALL 2' X 2' HAND PLACE 6" D50 RIP RAP SPLASH PAD OVER GEOTEXTILE FABRIC.
- INSTALL HAND PLACE 6" D50 RIP RAP SPLASH PAD OVER GEOTEXTILE FABRIC. DIMENSIONS PER PLAN.
- CONSTRUCT DRAINAGE SWALE PER DETAIL 4 SHEET 6.

HORIZONTAL CONTROL

Line Table		
Line #	Length	Direction
L1	38.00	N67° 27' 33"W
L2	4.00	N75° 10' 29"W
L3	36.83	N67° 27' 33"W
L4	4.22	N90° 00' 00"W
L5	5.00	N00° 00' 00"E
L6	6.63	N90° 00' 00"E
L7	10.84	N59° 47' 24"W
L8	12.62	N00° 00' 00"E
L9	5.00	N90° 00' 00"E
L10	10.91	S00° 00' 00"E
L11	7.39	S59° 47' 24"E
L12	5.56	N90° 00' 00"W

Line Table		
Line #	Length	Direction
L13	5.00	N00° 00' 00"E
L14	9.34	N90° 00' 00"E
L15	36.88	S51° 59' 55"E
L16	4.00	S44° 24' 18"E
L17	38.00	S51° 59' 55"E
L18	3.56	N90° 00' 00"W
L19	5.00	N00° 00' 00"E
L20	6.14	N90° 00' 00"E
L21	32.00	N61° 24' 42"W
L22	32.00	S66° 44' 18"E
L23	4.29	N90° 00' 00"W
L24	5.00	N00° 00' 00"E

Line Table		
Line #	Length	Direction
L25	6.87	N90° 00' 00"E
L26	32.82	N61° 24' 42"W
L27	32.82	S66° 44' 18"E
L28	32.83	S60° 41' 27"E
L29	32.83	N58° 53' 20"W
L30	5.00	S00° 00' 00"E
L31	5.55	N90° 00' 00"E
L32	32.83	N58° 10' 06"W
L33	32.83	S52° 43' 59"E
L34	9.23	N90° 00' 00"W
L35	32.00	N52° 43' 59"W
L36	32.00	S58° 10' 06"E

Line Table		
Line #	Length	Direction
L37	4.74	N90° 00' 00"W
L38	5.00	N00° 00' 00"E
L39	8.45	N90° 00' 00"E
L40	32.00	N58° 53' 20"W
L41	32.00	S60° 41' 27"E
L42	40.00	S75° 10' 29"E
L43	24.00	N65° 24' 31"W
L44	24.00	S75° 10' 29"E
L45	40.00	S44° 24' 18"E

Curve Table			
Curve #	Length	Radius	Delta
C1	84.21	312.00	013.46
C2	47.13	350.00	007.72
C3	47.67	354.00	007.72
C4	19.46	390.83	002.85
C5	25.30	390.83	003.71
C6	44.88	390.83	006.58
C7	46.92	354.00	007.59
C8	46.39	350.00	007.59
C9	19.83	318.00	003.57
C10	4.10	318.00	000.74

Curve Table			
Curve #	Length	Radius	Delta
C11	32.54	350.00	005.33
C12	21.84	354.00	003.53
C13	5.45	354.00	000.88
C14	35.96	386.82	005.33
C15	12.16	386.83	001.80
C16	11.13	354.00	001.80
C17	25.18	354.00	004.08
C18	36.70	386.83	005.44
C19	2.19	354.00	000.35
C20	33.20	350.00	005.44

Curve Table			
Curve #	Length	Radius	Delta
C21	23.02	318.00	004.15
C22	0.92	318.00	000.17
C23	11.01	350.00	001.80
C24	10.00	318.00	001.80
C25	42.01	312.00	007.72
C26	57.88	310.00	010.70
C27	53.78	285.99	010.78
C28	41.33	312.00	007.59

Point Table				
Point #	Raw Description	Elevation	Northing	Easting
CP1	HOGAN 1 CTR	5645.90	2082093.0903	477366.9403
CP2	HOGAN 2 CTR	5646.40	2082109.1290	477333.9750
CP3	HOGAN 3 CTR	5646.90	2082117.1437	477296.9632
CP4	HOGAN 4 CTR	5646.60	2082157.3113	477305.9892
CP5	HOGAN 5 CTR	5645.20	2082185.1983	477336.8969
CP6	HOGAN 6 CTR	5645.60	2082157.1515	477361.9777
CP7	HOGAN 7 CTR	5645.40	2082136.3609	477392.1721
CP8	GRVL LIMITS	5645.71	2082020.2185	477390.6469
CP9	SW	5646.42	2082037.6178	477324.9106

Point Table				
Point #	Raw Description	Elevation	Northing	Easting
CP10	SW	5646.00	2082082.7423	477340.1695
CP11	SW	5645.82	2082096.8621	477306.1500
CP12	SW	5646.07	2082143.6958	477329.3735
CP13	SW	5644.90	2082187.6983	477359.1121
CP14	SW	5645.08	2082164.9902	477388.1757
CP15	SW	5644.61	2082199.9409	477419.4232
CP16	LIP OF CURB	5644.36	2082168.5068	477450.2112
CP17	LIP OF CURB	5645.15	2082080.6055	477387.3762
CP18	GRVL LIMITS	5645.15	2082070.6166	477409.2025

NOTE: SEE COVER SHEET FOR HORIZONTAL CONTROL REFERENCE.

EARTHWORK

QTY'S DO NOT INCLUDE SHRINK OR SWELL FACTORS
CUT..... 1240 ± C.Y.
FILL..... 490 ± C.Y.

ARROWHEAD
ENGINEERING, INC.

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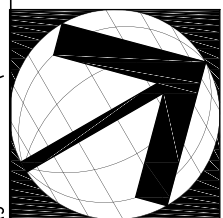


GRADING AND DRAINAGE PLAN
NATIVE NEW VOC. HIGH SCHOOL
HOGANS 1-7
THE PROJECT IS LOCATED IN A PORTION
SECTION 12, T-38-N, R-19-E, G&S.R.B.&M.
NAVAJO COUNTY, ARIZONA

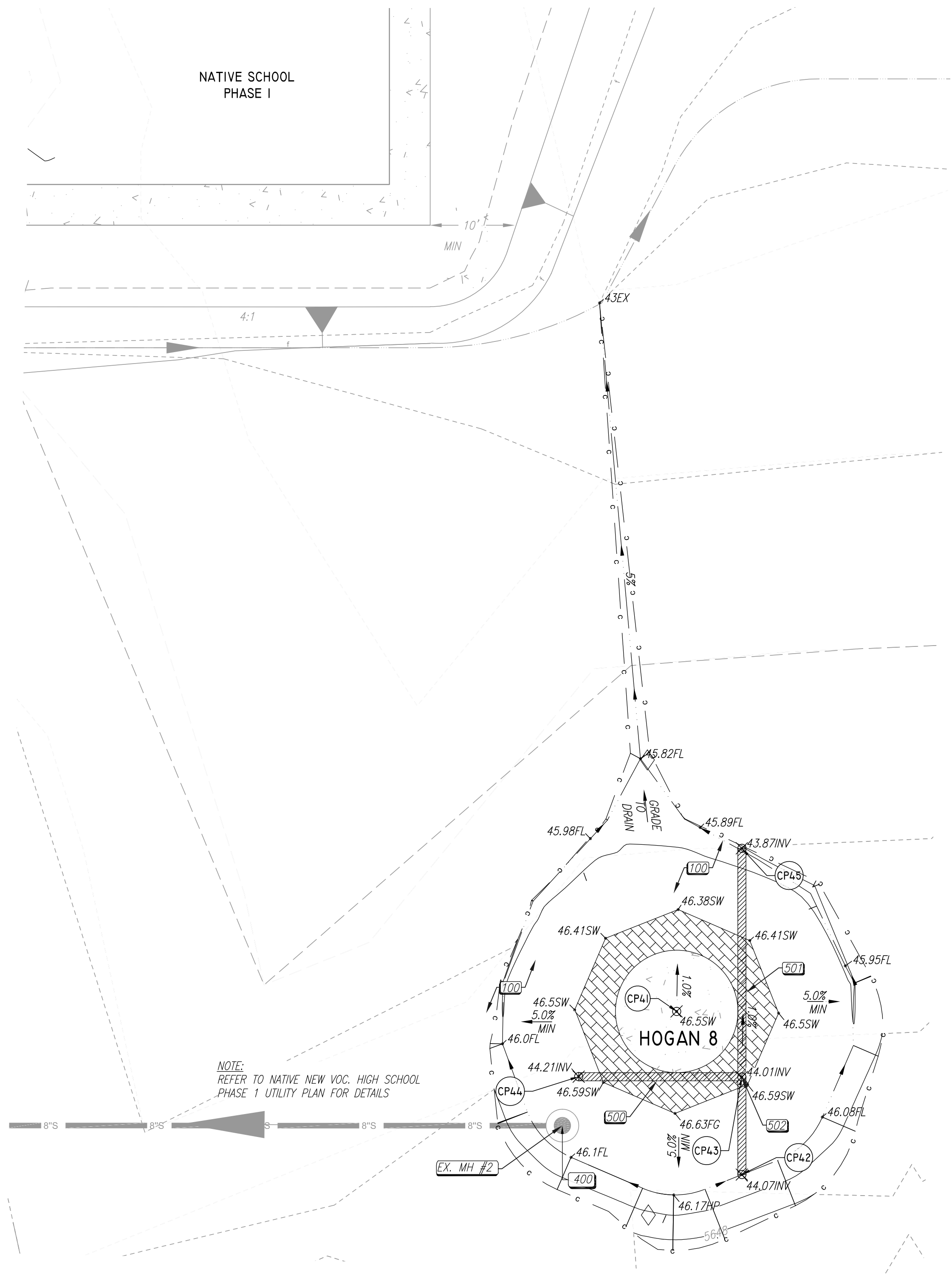
SHEET
2 OF 6

AEI JOB: 21I-013 SCALE: 1" = 10'

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\\192.168.1.18 guest-shore\nATIVE_HOGAN\ENGINEERING\NATIVE_HOGAN_BASE.dwg Plotted: Jun 25, 2012



CONTOUR INTERVAL = 1 FOOT
HORIZONTAL SCALE: 1" = 10'
0' 10' 20' 30'



GENERAL CONSTRUCTION NOTES:
ALL CLEARING AND GRUBBING, EXCAVATION, FILL, GRADING, BERM, SWALE, AND DITCH CONSTRUCTION IS INCIDENTAL TO CONSTRUCTION AND SHALL BE CONSTRUCTED TO GRADES AND LINES SHOWN, EVEN IF NOT SPECIFICALLY NOTED AS A WORK ITEM.

GENERAL NOTES

100 CONTRACTOR TO PLACE FILL PER WESTERN TECHNOLOGIES INC. REPORT NO. 3129JS056 DATED 10-20-09 AND REPORT NO. 3129JS075 DATED 1-12-10.

PAVING NOTES

NONE THIS SHEET.

WATER NOTES

NONE THIS SHEET.

SEWER NOTES

400 ADJUST MANHOLE RIM TO 5646.25.

DRAINAGE NOTES

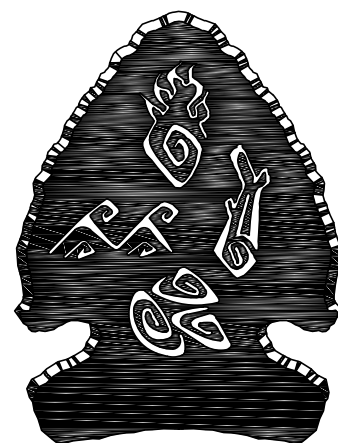
500 INSTALL ± 20' L.F. OF 12" CORRUGATED HDPE TYPE "S" STORM SEWER PER ASTM F2648 TO INVERTS SHOWN. LOCATE ENDS PER HORIZONTAL CONTROL PLAN SHEET C1.0. MINIMUM COVER IS 1'. CAP AND FLAG ENDS. TO BE USED IN FUTURE PHASE.

501 INSTALL ± 40' L.F. OF 12" CORRUGATED HDPE TYPE "S" STORM SEWER PER ASTM F2648 TO INVERTS SHOWN. LOCATE ENDS PER HORIZONTAL CONTROL PLAN SHEET C1.0. MINIMUM COVER IS 1'. CAP AND FLAG ENDS. TO BE USED IN FUTURE PHASE.

502 INSTALL 12" HDPE TEE WITH 12" BRANCHES

Point Table			
Point #	Raw Description	Northing	Easting
CP41	HOGAN 8 CTR	2081947.0392	477667.1262
CP42	12" SD INV	2081927.0383	477675.1240
CP43	SD 12" TEE	2081938.9953	477675.1164
CP44	12" SD INV	2081939.0406	477655.1253
CP45	12" SD INV	2081967.0383	477675.1284

NOTE: SEE COVER SHEET FOR HORIZONTAL CONTROL REFERENCE.



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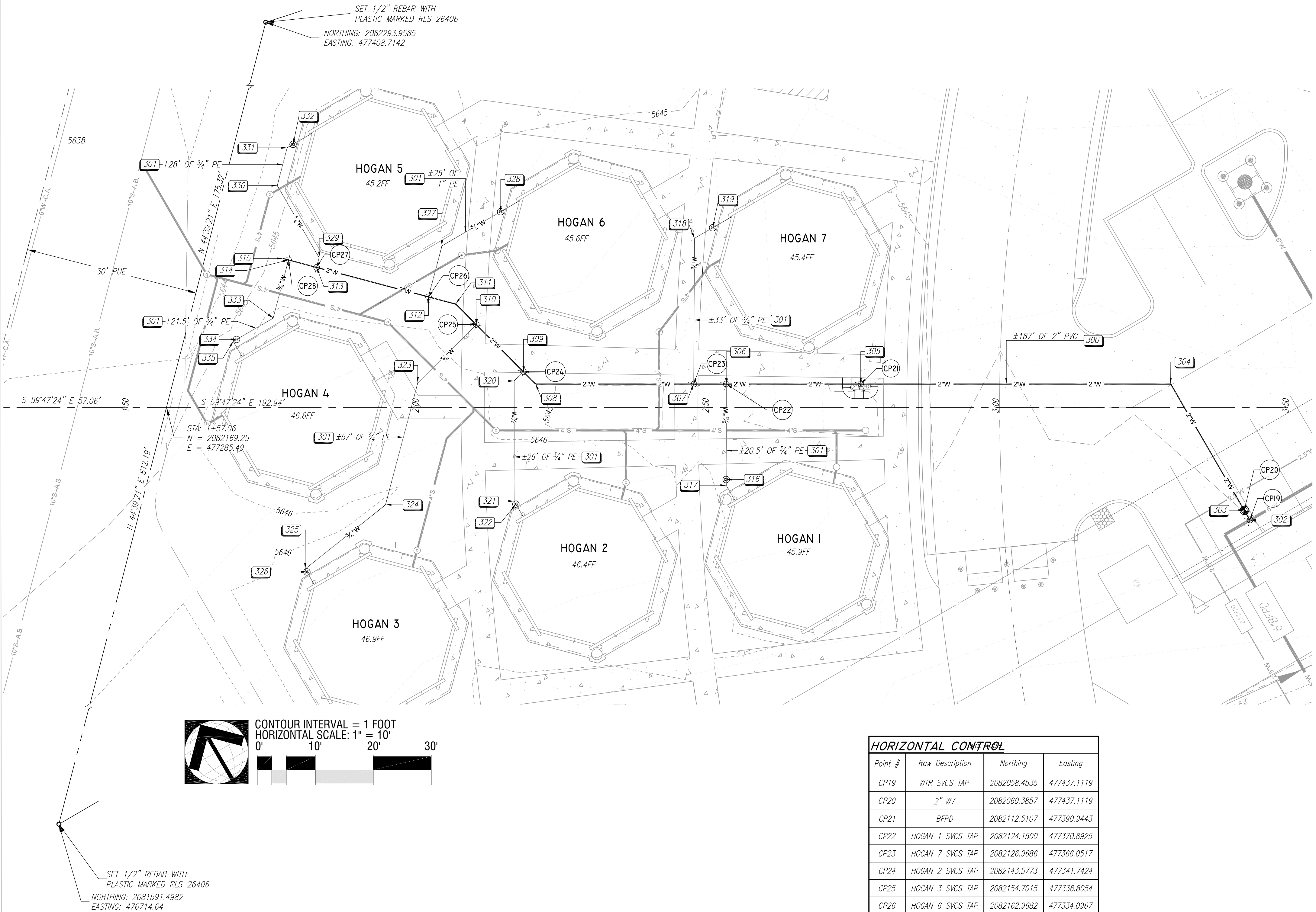
**GRADING AND DRAINAGE PLAN
NATIVE NEW VOC. HIGH SCHOOL**

HOGAN 8
THE PROJECT IS LOCATED IN A PORTION
SECTION 12, T-38-N, R-19-E, G&S.R.B.&M.
NAVAJO COUNTY, ARIZONA

AEI JOB: 21I-013 SCALE: 1" = 10'

SHEET
3 OF 6

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HORIZONTAL CONTROL			
Point #	Raw Description	Northing	Easting
CP19	WTR SVCS TAP	2082058.4535	477437.1119
CP20	2" WV	2082060.3857	477437.1119
CP21	BFPD	2082112.5107	477390.9443
CP22	HOGAN 1 SVCS TAP	2082124.1500	477370.8925
CP23	HOGAN 7 SVCS TAP	2082126.9686	477366.0517
CP24	HOGAN 2 SVCS TAP	2082143.5773	477341.7424
CP25	HOGAN 3 SVCS TAP	2082154.7015	477338.8054
CP26	HOGAN 6 SVCS TAP	2082162.9682	477334.0967
CP27	HOGAN 5 SVCS TAP	2082177.0764	477319.9884
CP28	HOGAN 4 SVCS TAP	2082180.6119	477316.4529

NOTE: SEE COVER SHEET FOR HORIZONTAL CONTROL REFERENCE.

GENERAL NOTES

NONE THIS SHEET. SEE SHEET 2.

PAVING NOTES

NONE THIS SHEET. SEE SHEET 2.

WATER NOTES

ALL MATERIALS AND PRODUCTS USED IN DRINKING WATER SYSTEM SHALL CONFORM TO NAVAJO AREA STANDARDS AND CONSTRUCTION REQUIREMENTS TECHNICAL SPECIFICATIONS FOR MATERIALS AND WORKMANSHIP FOR WATER AND WASTEWATER FACILITIES MOST CURRENT EDITIONS. ALL PVC WATER LINES AND FITTING MATERIALS AND PIPE INSTALLATION SHALL BE CONSTRUCTED PER NTUA TECHNICAL SPECIFICATIONS TP 3.02.01 AND 3.02.02. CONNECTION TO EXISTING MAIN SHALL BE IN ACCORDANCE WITH NTUA TECHNICAL SPECIFICATIONS TP 3.02.03. VALVES AND VALVE BOXES SHALL BE INSTALLED PER NTUA TECHNICAL SPECIFICATIONS TP 3.03. THRUST BLOCKING SHALL BE PLACED AT ALL BENDS, CAPS, TEES, AND CROSSES PER NTUA TECHNICAL SPECIFICATIONS TP 3.05 AND NTUA STD. DWG. WS-19 AND WS-19A. ALL PE WATER LINES AND FITTING MATERIALS AND PIPE INSTALLATION SHALL BE CONSTRUCTED PER NTUA TECHNICAL SPECIFICATIONS TP 3.07. CONSTRUCT AND TEST WATER LINES PER NTUA SPECIFICATIONS TP 3.08. CONTRACTOR TO VERIFY PARTLIST WITH NTUA PRIOR TO ORDERING AND INSTALLATION. UNDERGROUND UTILITIES TYPICAL LOCATION AND TRENCH DETAIL PER DETAILS 4 ON SHEET 5.

DOMESTIC SERVICE

- [300] INSTALL 2.0" PVC WATERLINE (SDR 21/200 PSI). LENGTH PER PLANS.
[301] INSTALL 3/4" PE, PIPE SHALL BE IPS, 200 PSI, SDR 7. LENGTH PER PLANS.

DOMESTIC SERVICE APPURTENANCES

- [302] STA: 3+43.83, RT 19.45' - CONNECT NEW 2" WATER SERVICE TO EXISTING 6" WATER MAIN PER DETAIL 7 SHEET 6.
[303] STA: 3+42.86 RT 17.78' - INSTALL 2" GATE VALVE, BOX, AND COVER PER DETAIL 8 SHEET 6.
[304] STA: 3+30.18, LT 4.0' - INSTALL 2" 45' (22.5'+22.5') BEND.
[305] STA: 2+75.49 LT 4.0' - INSTALL 2" BACKFLOW ASSEMBLY PER NTUA STD. DWG. WS-30.
[306] STA: 2+53.55 LT 4.0' - CONNECT HOGAN 1 WTR SVCS PER THE FOLLOWING: INSTALL 2" X 3/4" X 2" REDUCING TEE.
[307] STA: 2+47.95, LT 4.0' - CONNECT HOGAN 7 WTR SVCS PER THE FOLLOWING: INSTALL 2" X 3/4" X 2" REDUCING TEE.
[308] STA: 2+20.71, LT 4.0' - INSTALL 1" 45' (22.5'+22.5') BEND.
[309] STA: 2+18.58 LT 6.12' - CONNECT HOGAN 2 WTR SVCS PER THE FOLLOWING: INSTALL 2" X 3/4" X 2" REDUCING TEE.
[310] STA: 2+10.45 LT 14.26' - CONNECT HOGAN 3 WTR SVCS PER THE FOLLOWING: INSTALL 2" X 3/4" X 2" REDUCING TEE.
[311] STA: 2+06.91, LT 17.79' - INSTALL 1" 45' (22.5'+22.5') BEND.
[312] STA: 2+02.22 LT 19.03' - CONNECT HOGAN 6 WTR SVCS PER THE FOLLOWING: INSTALL 2" X 3/4" X 2" REDUCING TEE.
[313] STA: 1+82.93 LT 24.13' - CONNECT HOGAN 5 WTR SVCS PER THE FOLLOWING: INSTALL 2" X 3/4" X 2" REDUCING TEE.
[314] STA: 1+78.09 LT 25.40' - CONNECT HOGAN 4 WTR SVCS PER THE FOLLOWING: INSTALL 2" X 3/4" X 2" REDUCING TEE.
[315] STA: 1+77.13 LT 25.66' - INSTALL 2" FLUSH VALVE PER NTUA STD. DWG. WS-11.

HOGAN 1 WTR SVCS

- [316] STA: 2+54.19 RT 14.51' - INSTALL 3/4" DOMESTIC STOP PER NTUA TECHNICAL SPECIFICATION 3.07.10 AND INSTALL DOMESTIC STOP VALVE BOX PER NTUA TECHNICAL SPECIFICATION 3.07.11.
[317] STA: 2+53.55, RT 12.47' - INSTALL 3/4" 30' BEND.

HOGAN 7 WTR SVCS

- [318] STA: 2+48.08, LT 29.12' - INSTALL 3/4" 60' BEND.
[319] STA: 2+51.22 LT 30.95' - INSTALL 3/4" DOMESTIC STOP PER NTUA TECHNICAL SPECIFICATION 3.07.10 AND INSTALL DOMESTIC STOP VALVE BOX PER NTUA TECHNICAL SPECIFICATION 3.07.11.

HOGAN 2 WTR SVCS

- [320] STA: 2+16.99, LT 4.53' - INSTALL 3/4" 45' (22.5'+22.5') BEND.
[321] STA: 2+16.99, RT 16.20' - INSTALL 3/4" 30' BEND.
[322] STA: 2+17.29 RT 16.71' - INSTALL 3/4" DOMESTIC STOP PER NTUA TECHNICAL SPECIFICATION 3.07.10 AND INSTALL DOMESTIC STOP VALVE BOX PER NTUA TECHNICAL SPECIFICATION 3.07.11.

HOGAN 3 WTR SVCS

- [323] STA: 2+00.37 LT 4.17' - INSTALL 3/4" 30' BEND.
[324] STA: 1+94.82, RT 16.83' - INSTALL 3/4" 45' (22.5'+22.5') BEND.
[325] STA: 1+80.97, RT 27.9' - INSTALL 3/4" 90' (45'+45') BEND.
[326] STA: 1+81.27 RT 28.40' - INSTALL 3/4" DOMESTIC STOP PER NTUA TECHNICAL SPECIFICATION 3.07.10 AND INSTALL DOMESTIC STOP VALVE BOX PER NTUA TECHNICAL SPECIFICATION 3.07.11.

HOGAN 6 WTR SVCS

- [327] STA: 2+04.54, LT 27.83' - INSTALL 3/4" 45' (22.5'+22.5') BEND.
[328] STA: 2+14.66 LT 33.73' - INSTALL 3/4" DOMESTIC STOP PER NTUA TECHNICAL SPECIFICATION 3.07.10 AND INSTALL DOMESTIC STOP VALVE BOX PER NTUA TECHNICAL SPECIFICATION 3.07.11.

HOGAN 5 WTR SVCS

- [329] STA: 1+83.38, LT 25.82' - INSTALL 3/4" 45' (22.5'+22.5') BEND.
[330] STA: 1+76.16, LT 38.21' - INSTALL 3/4" 45' (22.5'+22.5') BEND.
[331] STA: 1+77.85, LT 44.75' - INSTALL 3/4" 45' (22.5'+22.5') BEND.
[332] STA: 2+14.66 LT 33.73' - INSTALL 3/4" DOMESTIC STOP PER NTUA TECHNICAL SPECIFICATION 3.07.10 AND INSTALL DOMESTIC STOP VALVE BOX PER NTUA TECHNICAL SPECIFICATION 3.07.11.

HOGAN 4 WTR SVCS

- [333] STA: 1+75.45 LT 15.37' - INSTALL 3/4" 45' (22.5'+22.5') BEND.
[334] STA: 1+69.20 LT 10.32' - INSTALL 3/4" DOMESTIC STOP PER NTUA TECHNICAL SPECIFICATION 3.07.10 AND INSTALL DOMESTIC STOP VALVE BOX PER NTUA TECHNICAL SPECIFICATION 3.07.11.
[335] STA: 1+69.13, LT 11.69 - INSTALL 3/4" 90' (45'+45') BEND.

SEWER NOTES

NONE THIS SHEET. SEE SHEET 5.

DRAINAGE NOTES

NONE THIS SHEET. SEE SHEET 2.



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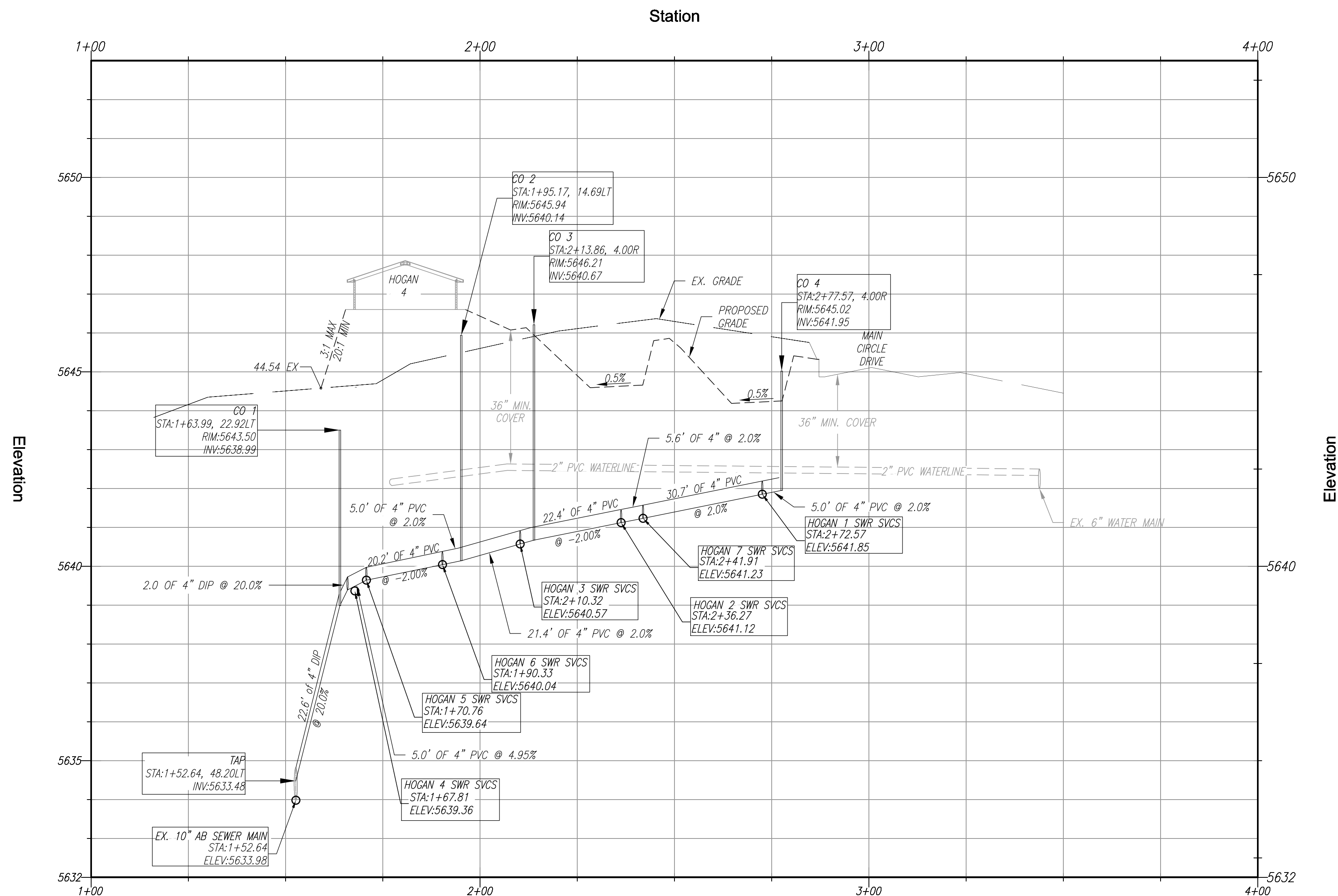
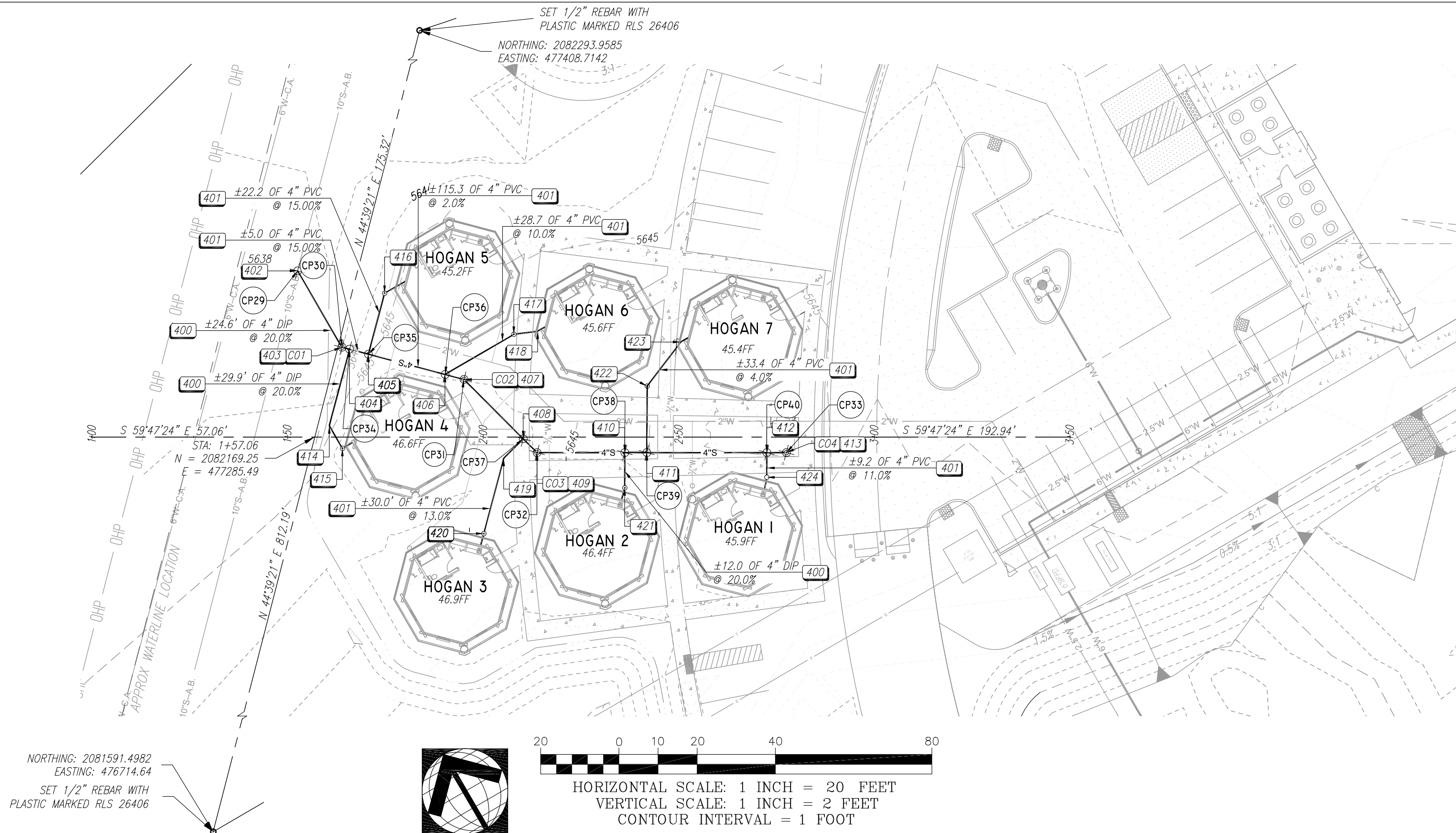
1685 S. SAN TODARO PLACE
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PHONE: 520-822-7702
FAX: 520-777-3438



WATER PLAN
NATIVE NEW VOC. HIGH SCHOOL
HOGANS
THE PROJECT IS LOCATED IN A PORTION
SECTION 12, T-38-N, R-19-E, G&S.R.B.&M.
NAVAJO COUNTY, ARIZONA

AEI JOB: 211-013 SCALE: 1" = 10'

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GENERAL NOTES

NONE THIS SHEET

PAVING NOTES

NONE THIS SHEET

WATER NOTES

NONE THIS SHEET

SEWER NOTES

INSTALL ALL SEWER LINES IN ACCORDANCE WITH NTUA TECHNICAL SPECIFICATION TP 4.03.01, 4.03.02, 4.03.03, 4.03.04 AND 4.04. CONSTRUCT ALL SEWER SERVICES IN ACCORDANCE WITH NTUA TECHNICAL SPECIFICATION TP 4.07. TYPICAL TRENCHING AND BACKFILL PER DETAIL 1 AND 2 ON SHEET C6. CONTRACTOR TO VERIFY PARTLIST WITH NTUA PRIOR TO ORDERING AND INSTALLATION.

4" SEWER SERVICE

400) INSTALL 4" CLASS 52 DIP MANUFACTURED IN ACCORDANCE WITH AWWA C150. LENGTH AND SLOPE PER PLANS.

401) INSTALL 4" TYPE PSM SDR35 PVC SEWER PIPE. LENGTH AND SLOPE PER PLANS.

4" SEWER SERVICE APPURTENANCES

402) STA: 1+52.64, LT 48.02, INV=33.48 - CONNECT NEW 4" SEWER SERVICE TO EXISTING 10" SEWER MAIN PER THE FOLLOWING: INSTALL 10" X 4" SADDLE WYE PER NTUA TECHNICAL SPECIFICATION 4.04.03 AND 4.07.02.

403) STA: 1+63.99 LT 22.92' - INSTALL 4" SEWER CLEANOUT PER DETAIL 9 SHEET 6. RIM=43.50, INV=38.99

404) STA: 1+65.93, LT 22.41', INV=39.39 - CONNECT HOGAN 4 SWR SVCS PER THE FOLLOWING: INSTALL 4" X 4" WYE.

405) STA: 1+70.76, LT 21.13', INV=39.64 - CONNECT HOGAN 5 SWR SVCS PER THE FOLLOWING: INSTALL 4" X 4" WYE.

406) STA: 1+90.33, LT 15.96, INV=40.04 - CONNECT HOGAN 6 SWR SVCS PER THE FOLLOWING: INSTALL 4" X 4" WYE.

407) STA: 1+95.17 LT 14.69' - INSTALL 4" SEWER CLEANOUT PER DETAIL SHEET. RIM=45.94, INV=40.14

408) STA: 2+10.32 RT 0.46', INV=40.57 - CONNECT HOGAN 3 SWR SVCS PER THE FOLLOWING: INSTALL 4" X 4" WYE.

409) STA: 2+13.86 RT 4.0' - INSTALL 4" SEWER CLEANOUT PER DETAIL 9 SHEET 6. RIM=46.21, INV=40.67

410) STA: 2+36.27 RT 4.0', INV=41.12 - CONNECT HOGAN 2 SWR SVCS PER THE FOLLOWING: INSTALL 4" X 4" WYE.

411) STA: 2+41.91 RT 4.0', INV=41.23 - CONNECT HOGAN 7 SWR SVCS PER THE FOLLOWING: INSTALL 4" X 4" WYE.

412) STA: 2+72.57 RT 4.0', INV=41.85 - CONNECT HOGAN 1 SWR SVCS PER THE FOLLOWING: INSTALL 4" X 4" WYE.

413) STA: 2+77.57 RT 4.0' - INSTALL 4" SEWER CLEANOUT PER DETAIL 9 SHEET 6. RIM=45.02, INV=41.95.

HOGAN 4 SWR SVCS

414) STA: 1+60.76 LT 2.83', INV=42.94 - INSTALL 4" 45' (22.5'+22.5') BEND.

415) STA: 1+64.10 RT 2.91' - INSTALL 4" SEWER CLEANOUT PER DETAIL 9 SHEET 6. RIM=46.4, INV=43.69.

HOGAN 5 SWR SVCS

416) STA: 1+74.87 RT 36.69' - INSTALL 4" SEWER CLEANOUT PER DETAIL 9 SHEET 6. RIM=44.5, INV=41.73

HOGAN 6 SWR SVCS

417) STA: 2+07.92 LT 26.2' - INSTALL 4" SEWER CLEANOUT PER DETAIL 9 SHEET 6. RIM=45.43, INV=42.08

418) STA: 2+14.02 LT 27.03', INV=42.69 - INSTALL 4" 22.5' (12.25'+12.25) BEND.

HOGAN 3 SWR SVCS

419) STA: 2+05.33 RT 5.46', INV=41.87 - INSTALL 4" 30' BEND.

420) STA: 2+00.25 RT 24.7' - INSTALL 4" SEWER CLEANOUT PER DETAIL 9 SHEET 6. RIM=46.67, INV=44.08.

HOGAN 2 SWR SVCS

421) STA: 2+36.27 RT 13' - INSTALL 4" SEWER CLEANOUT PER DETAIL 9 SHEET 6. RIM=46.23, INV=42.92

HOGAN 7 SWR SVCS

422) STA: 2+42.00 LT 12.99' - INSTALL 4" SEWER CLEANOUT PER DETAIL 9 SHEET 6. RIM=45.63, INV=41.91.

423) STA: 2+50.58 LT 24.26', INV=42.48 - INSTALL 4" 30' BEND.

HOGAN 1 SWR SVCS

424) STA: 2+72.57 RT 10.32' - INSTALL 4" SEWER CLEANOUT PER DETAIL 9 SHEET 6. RIM=45.51 INV=42.55

DRAINAGE NOTES

NONE THIS SHEET

HORIZONTAL CONTROL

Point Table			
Point #	Raw Description	Northing	Easting
CP29	SWR SVCS TAP	2082208.1195	477303.0179
CP30	CO 1	2082185.5617	477303.0179
CP31	CO 2	2082162.7622	477325.8174
CP32	CO 3	2082137.2096	477332.5638
CP33	CO 4	2082105.1504	477387.6246
CP34	HOGAN 4 SVCS TAP	2082184.1475	477304.4321
CP35	HOGAN 5 SVCS TAP	2082180.6119	477307.9676
CP36	HOGAN 6 SVCS TAP	2082166.2977	477322.2818
CP37	HOGAN 2 SVCS TAP	2082142.0439	477331.2874
CP38	HOGAN 1 SVCS TAP	2082125.9330	477351.9310
CP39	HOGAN 7 SVCS TAP	2082123.0950	477356.8053
CP40	HOGAN 1 SVCS TAP	2082107.6663	477383.3037

NOTE: SEE COVER SHEET FOR HORIZONTAL CONTROL REFERENCE.



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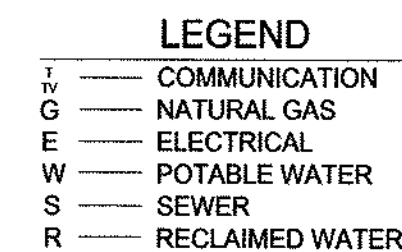
SEWER PLAN
NATIVE NEW VOC. HIGH SCHOOL

HOGANS
THE PROJECT IS LOCATED IN A PORTION
SECTION 12, T-38-N, R-19-E, G&S.R.B.&M.
NAVAJO COUNTY, ARIZONA

SHEET
5 OF 6

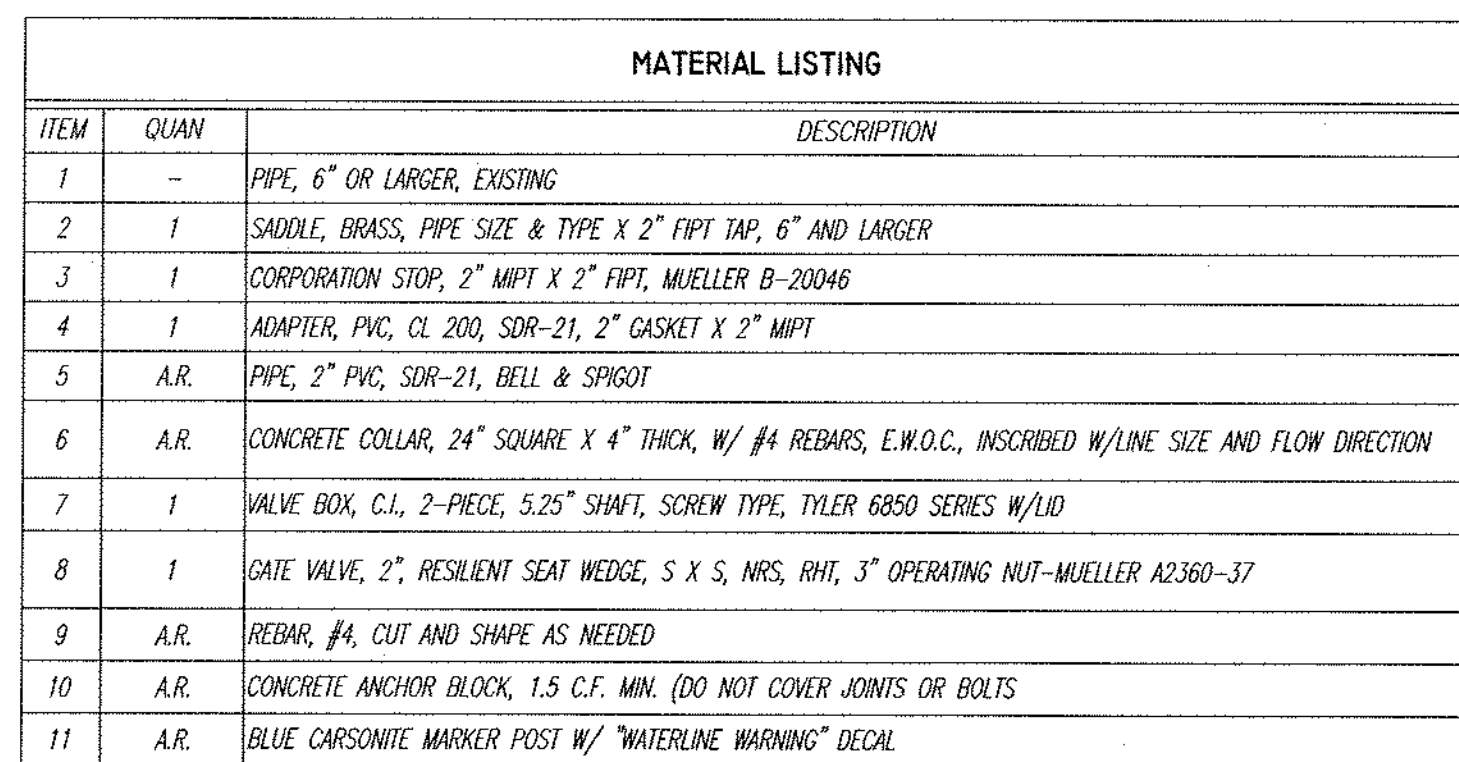
AEI JOB: 211-013 SCALE: 1" = 20'

1. PAVEMENT SECTIONS ARE PER WESTERN TECHNOLOGIES INC. REPORT NO. 312JWS056 DATED 10-20-09 AND REPORT NO. 312JWS0575 DATED 1-12-10
2. FOR THIS PHASE ALL STREETS WILL CONSIST OF A.B.C. ONLY
3. A.B.C. PER MAG SPEC SECTION 310 (100% DENSITY).
4. SUBGRADE PER MAG SPEC SECTION 301 (95% DENSITY).
5. ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH MAG SPECIFICATIONS AND THE GEOTECHNICAL INVESTIGATION UNLESS SPECIFICALLY NOTED OTHERWISE.

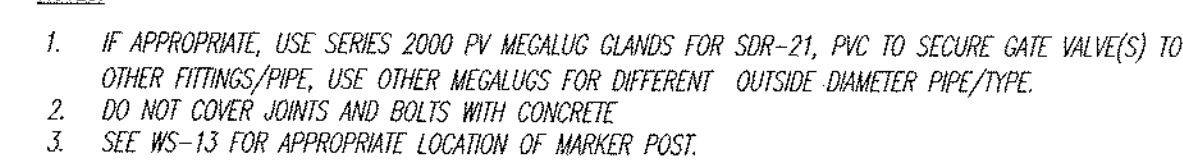
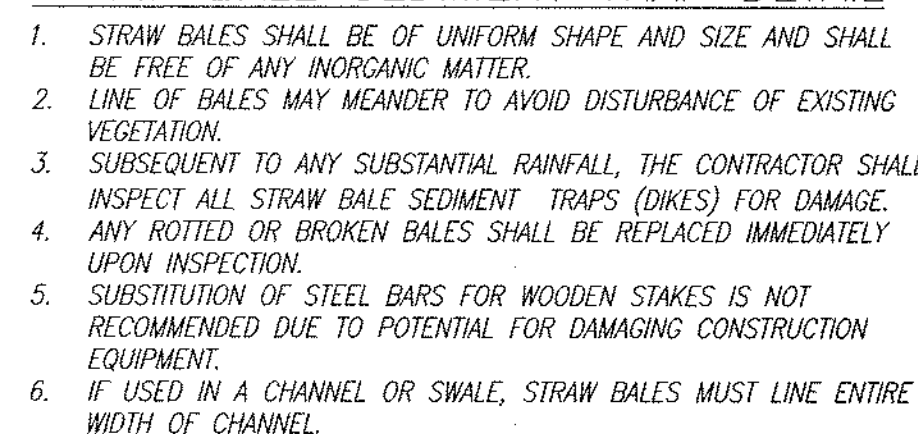


1. THE DIMENSIONS GIVEN IN THESE TRENCH DETAILS ARE MINIMUM, DEPENDING ON THE NUMBER AND SIZE OF UTILITIES IN A TRENCH, ADDITIONAL COVER AND/OR CLEARANCES MAY BE REQUIRED.
2. MINIMUM COVER SHALL BE MEASURED FROM THE TOP OF THE PIPE TO THE SUBGRADE UNDER EXISTING OR PROPOSED PAVEMENT. IN AREAS THAT ARE NOT TO BE PAVED, MINIMUM COVER SHALL BE MEASURED FROM FINISHED GRADE.
3. MINIMUM HORIZONTAL DISTANCE BETWEEN WATER AND SEWER PIPES IS 6 FEET.
4. WHEN SEWER AND WATER LINES CROSS, REFER TO ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (A.D.E.Q.) GUIDELINES, MAG STANDARD SPECIFICATION SECTION 610.5 AND MAG STD. DTL. 404.
5. WHILE POWER AND COMMUNICATION CABLES MAY BE INSTALLED IN SANITARY SEWER TRENCHES, A SEPARATE TRENCH MAY BE REQUIRED WHEN DEEMED NECESSARY BY UTILITY COMPANIES.
6. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY PRIOR TO WORK WHERE PROPOSED SEWER ENDOGRAPHS UTILITY LINES.
7. WATER AND ELECTRIC POWER LINES ARE NOT ALLOWED IN THE SAME TRENCH.
8. GAS AND SEWER LINES ARE NOT ALLOWED IN THE SAME TRENCH.
9. CONTRACTOR SHALL CALL WITH TWO WORKING DAYS PRIOR TO TRENCHING.
10. TRACER WIRES SHALL BE INSTALLED IN ACCORDANCE WITH TRENCHING AND BACKFILL DETAIL.
11. WHEN POWER AND COMMUNICATION CABLES ARE NOT IN THE SAME TRENCH, THEY SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF 36" FROM WATER LINES AND 24" FROM SEWER LINES, AND SHALL MAINTAIN A MINIMUM OF 12" ABOVE SEWER LINES, WHEN GAS LINES ARE NOT IN THE SAME TRENCH, A MINIMUM HORIZONTAL SEPARATION OF 36" FROM SEWER LINES AND 18" FROM WATER LINES SHALL BE MAINTAINED; GAS LINES SHALL ALSO BE A MINIMUM OF 18" ABOVE WATER LINES. ALL MEASUREMENTS SHALL BE MADE FROM THE OUTSIDE EDGE OF PIPE OR CABLE.
12. MINIMUM DEPTHS FOR POWER, GAS, TELEVISION, AND COMMUNICATION ARE MEASURED FROM FINISHED GRADE.
13. ALL WATERLINES (FIRE HYDRANT LEAD LINES, FIRE LINES AND SERVICE LINES) SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF 3'

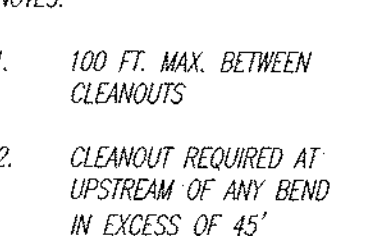
NTS



NTS SIMILAR TO NTUA STANDARD DRAWING WS-2



NTS NTUA STANDARD DRAWING WS-14



NTS NTUA STANDARD DETAIL DRAWING WWS-12

1685 S. SAN TODARO PLACE
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GRADING AND DRAINAGE DETAILS
NATIVE NEW VOC. HIGH SCHOOL
HOGANS
THE PROJECT IS LOCATED IN A PORTION
SECTION 12, T-38-N, R-19-E, G&S.R.B.&M.
NAVAJO COUNTY, ARIZONA

AEI JOB: 211-013 SCALE: 1" = 10'