TD11-TD35
TD1SS
TD1SR
TSMD1

DB1

TND1-TND5

TD2SS
TD2SR
TSMD2

DB2

TD3SS
TD3SR

DB3

TD4SS
TD4SR

DB4

PP10 VMSA
PVC   VMSB
PL8   PFA
PGF   PFB
PGMS
PWH

FLGW

EQUIP. ROOM

GARAGE

TW1SS
TW1SR
TW1GS
TW1GR

WB1

TW2SS
TW2SR
TW2GS
TW2GR

WB2

TW3SS
TW3SR
TW3GS
TW3GR

WB3

TSMW2

TNWB1-TNWB5
TSMW1

TW11-TW35
TW4SS
TW4SR
TW4GS
TW4GR

WB4

FLCW

DEN

LOW VOLTAGE ELEC ENCLOSURES
FOR DATA ACQUISITION

HALL

MECH. RM.

VFD

TAVCS

KITCHEN

MAIN ELECTRICAL ENCLOSURE

TAI1/RHI1

TAI9

TAI7

T1

House First
FloorTemp Sensor

POWDER

GREAT ROOM

TFCS
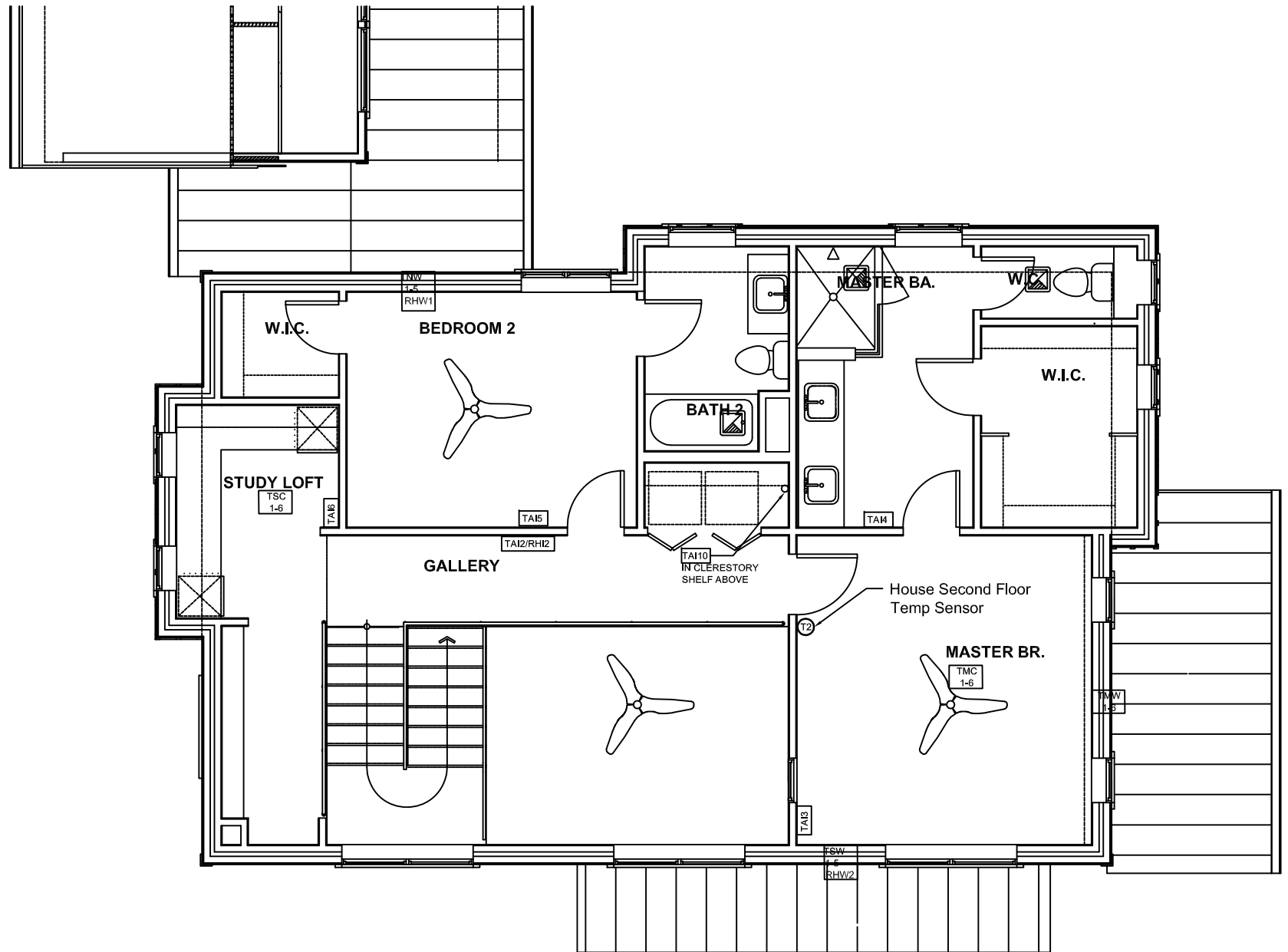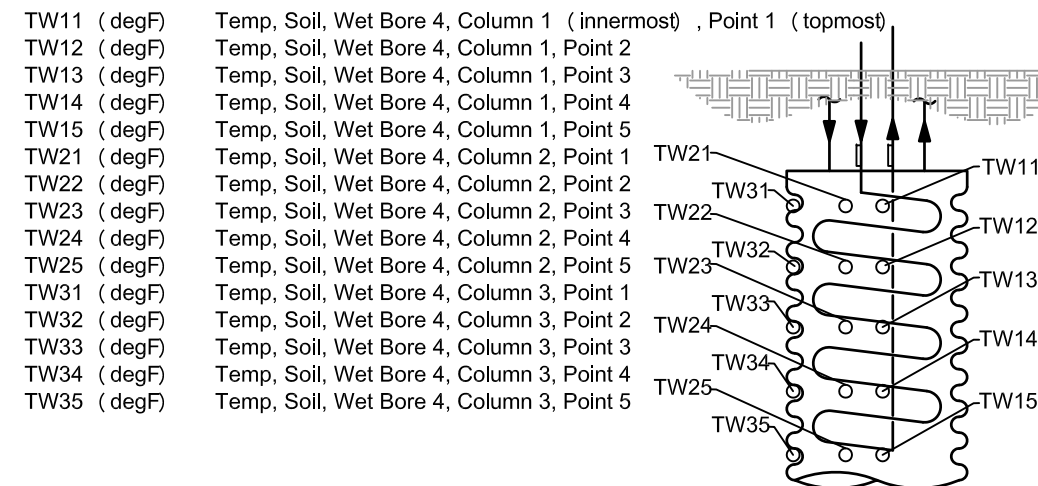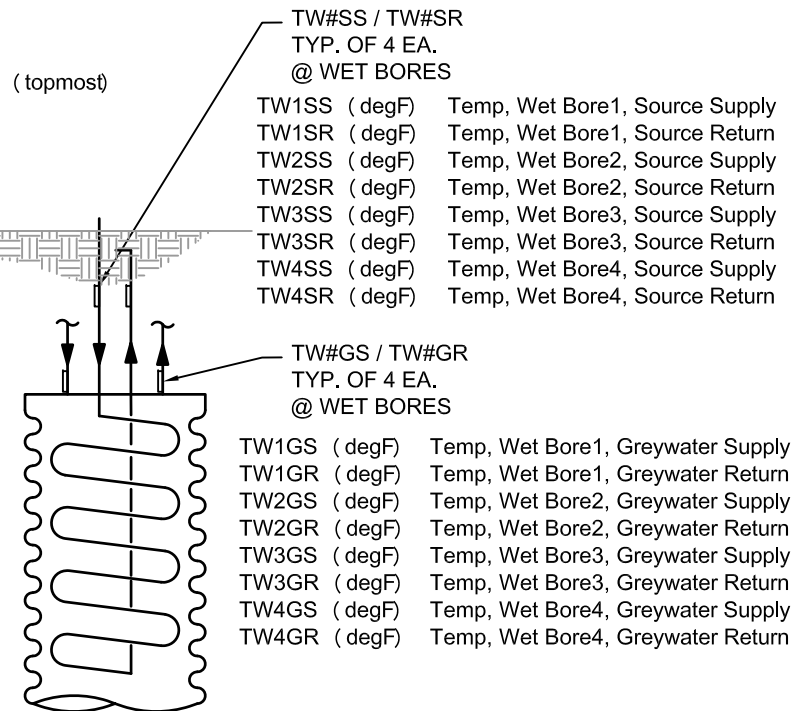**TFCB**
TFCI

STORAGE

TFES
TFEB
TFEI

FPWS

TAI8

TFCF
TFFI
TFFE

1   FIRST FLOOR MONITORING PLAN

W.I.C.

BEDROOM 2

MASTER BA.

W.I.C.

NW
1-5
RHW1

BATH 2

STUDY LOFT

TSC
1-6

TAI6

TAI5

TAI2/RHI2

TAI10
IN CLERESTORY
SHELF ABOVE

TAI4

GALLERY

House Second Floor
Temp Sensor

T2

MASTER BR.

TMC
1-6

TMW
1-6

TAI3

TSW
1-5
RHW2

SECOND FLOOR MONITORING PLAN

2

TNWB1 (degF)   Temp, Soil, Near Wet Bores 3 and 4, Point 1 (topmost)
TNWB2 (degF)   Temp, Soil, Near Wet Bores 3 and 4, Point 2
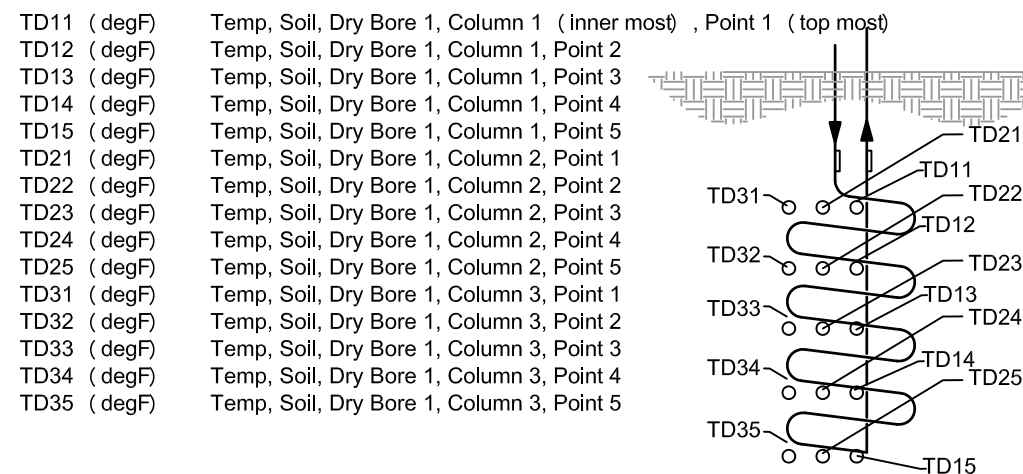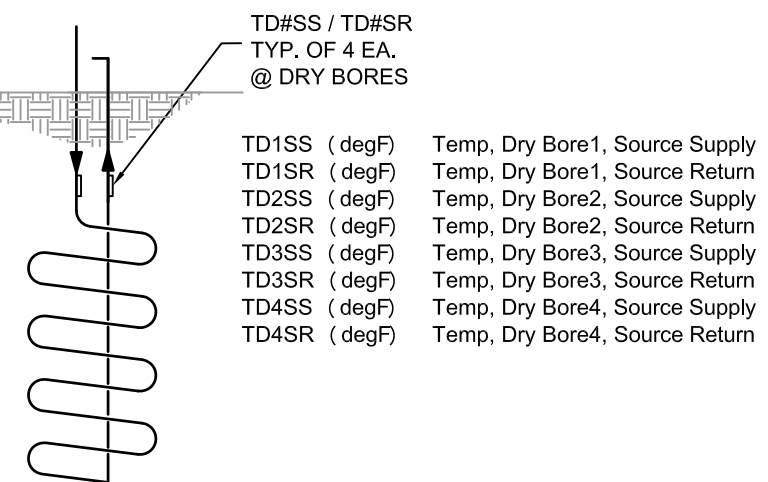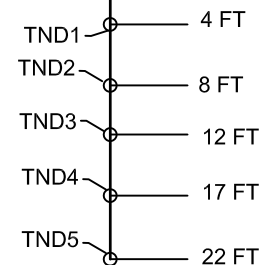TNWB3 (degF)   Temp, Soil, Near Wet Bores 3 and 4, Point 3
TNWB4 (degF)   Temp, Soil, Near Wet Bores 3 and 4, Point 4
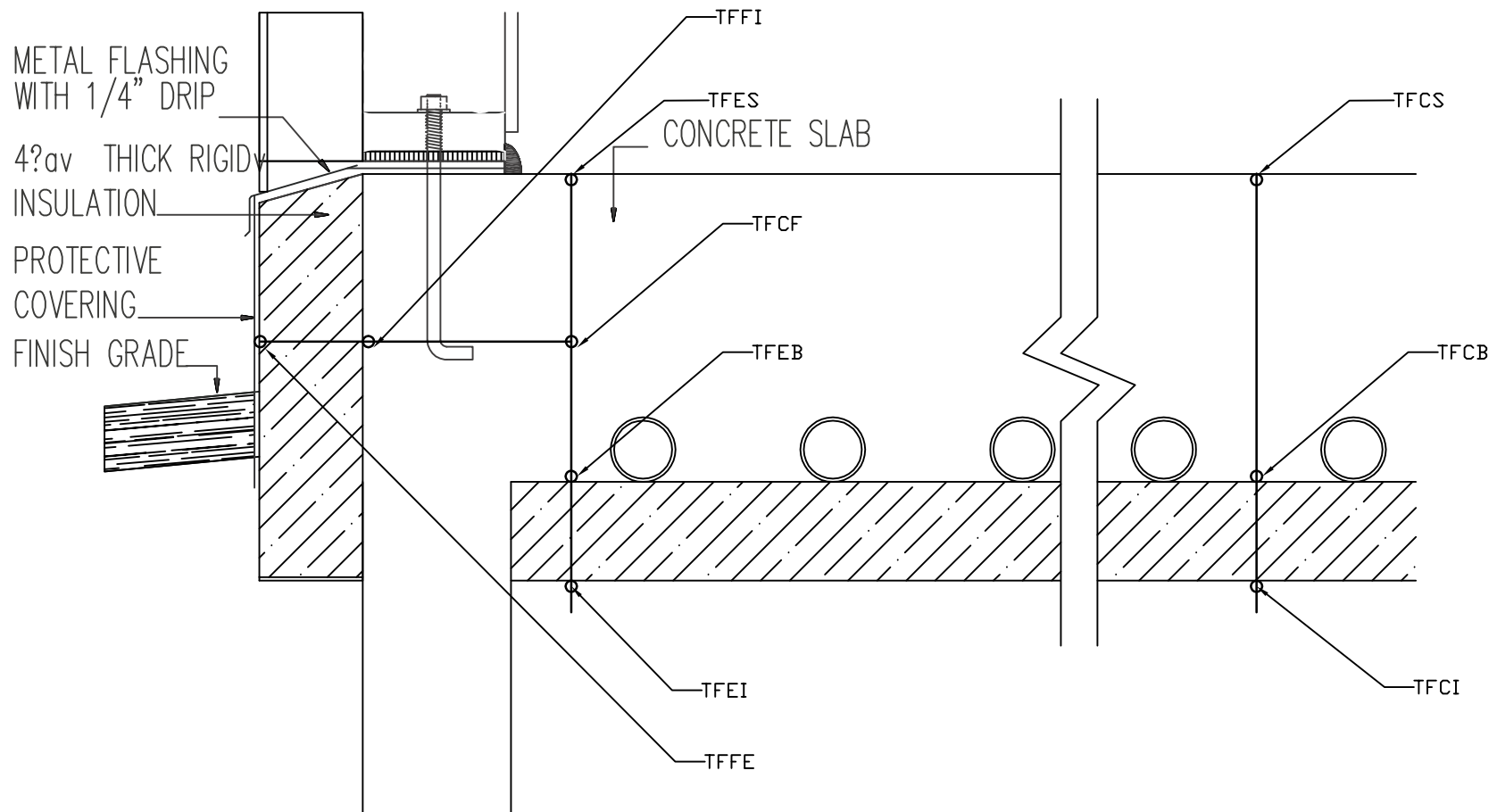TNWB5 (degF)   Temp, Soil, Near Wet Bores 3 and 4, Point 5

TW#SS / TW#SR
TYP. OF 4 EA.
@ WET BORES

TW1SS (degF)   Temp, Wet Bore1, Source Supply
TW1SR (degF)   Temp, Wet Bore1, Source Return
TW2SS (degF)   Temp, Wet Bore2, Source Supply
TW2SR (degF)   Temp, Wet Bore2, Source Return
TW3SS (degF)   Temp, Wet Bore3, Source Supply
TW3SR (degF)   Temp, Wet Bore3, Source Return
TW4SS (degF)   Temp, Wet Bore4, Source Supply
TW4SR (degF)   Temp, Wet Bore4, Source Return

TW11 (degF)   Temp, Soil, Wet Bore 4, Column 1 (innermost), Point 1 (topmost)
TW12 (degF)   Temp, Soil, Wet Bore 4, Column 1, Point 2
TW13 (degF)   Temp, Soil, Wet Bore 4, Column 1, Point 3
TW14 (degF)   Temp, Soil, Wet Bore 4, Column 1, Point 4
TW15 (degF)   Temp, Soil, Wet Bore 4, Column 1, Point 5
TW21 (degF)   Temp, Soil, Wet Bore 4, Column 2, Point 1
TW22 (degF)   Temp, Soil, Wet Bore 4, Column 2, Point 2
TW23 (degF)   Temp, Soil, Wet Bore 4, Column 2, Point 3
TW24 (degF)   Temp, Soil, Wet Bore 4, Column 2, Point 4
TW25 (degF)   Temp, Soil, Wet Bore 4, Column 2, Point 5
TW31 (degF)   Temp, Soil, Wet Bore 4, Column 3, Point 1
TW32 (degF)   Temp, Soil, Wet Bore 4, Column 3, Point 2
TW33 (degF)   Temp, Soil, Wet Bore 4, Column 3, Point 3
TW34 (degF)   Temp, Soil, Wet Bore 4, Column 3, Point 4
TW35 (degF)   Temp, Soil, Wet Bore 4, Column 3, Point 5

TW21 TW11
TW31 TW12
TW22
TW32 TW13
TW23
TW33 TW14
TW24
TW34
TW25 TW15
TW35

TNWB1   4 FT
TNWB2   8 FT
TNWB3   12 FT
TNWB4   17 FT
TNWB5   22 FT

TW#GS / TW#GR
TYP. OF 4 EA.
@ WET BORES

TW1GS (degF)   Temp, Wet Bore1, Greywater Supply
TW1GR (degF)   Temp, Wet Bore1, Greywater Return
TW2GS (degF)   Temp, Wet Bore2, Greywater Supply
TW2GR (degF)   Temp, Wet Bore2, Greywater Return
TW3GS (degF)   Temp, Wet Bore3, Greywater Supply
TW3GR (degF)   Temp, Wet Bore3, Greywater Return
TW4GS (degF)   Temp, Wet Bore4, Greywater Supply
TW4GR (degF)   Temp, Wet Bore4, Greywater Return

WET LOOP BORES

TND1 (degF)   Temp, Soil, Near Dry Bores 1 and 2, Point 1 (top most)
TND2 (degF)   Temp, Soil, Near Dry Bores 1 and 2, Point 2
TND3 (degF)   Temp, Soil, Near Dry Bores 1 and 2, Point 3
TND4 (degF)   Temp, Soil, Near Dry Bores 1 and 2, Point 4
TND5 (degF)   Temp, Soil, Near Dry Bores 1 and 2, Point 5

TD#SS / TD#SR
TYP. OF 4 EA.
@ DRY BORES

TD11 (degF)   Temp, Soil, Dry Bore 1, Column 1 (inner most), Point 1 (top most)
TD12 (degF)   Temp, Soil, Dry Bore 1, Column 1, Point 2
TD13 (degF)   Temp, Soil, Dry Bore 1, Column 1, Point 3
TD14 (degF)   Temp, Soil, Dry Bore 1, Column 1, Point 4
TD15 (degF)   Temp, Soil, Dry Bore 1, Column 1, Point 5
TD21 (degF)   Temp, Soil, Dry Bore 1, Column 2, Point 1
TD22 (degF)   Temp, Soil, Dry Bore 1, Column 2, Point 2
TD23 (degF)   Temp, Soil, Dry Bore 1, Column 2, Point 3
TD24 (degF)   Temp, Soil, Dry Bore 1, Column 2, Point 4
TD25 (degF)   Temp, Soil, Dry Bore 1, Column 2, Point 5
TD31 (degF)   Temp, Soil, Dry Bore 1, Column 3, Point 1
TD32 (degF)   Temp, Soil, Dry Bore 1, Column 3, Point 2
TD33 (degF)   Temp, Soil, Dry Bore 1, Column 3, Point 3
TD34 (degF)   Temp, Soil, Dry Bore 1, Column 3, Point 4
TD35 (degF)   Temp, Soil, Dry Bore 1, Column 3, Point 5

TD21 TD11
TD31 TD22
TD12
TD32 TD23
TD13
TD33 TD24
TD34 TD14
TD25
TD35 TD15

TND1   4 FT
TND2   8 FT
TND3   12 FT
TND4   17 FT
TND5   22 FT

TD1SS (degF)   Temp, Dry Bore1, Source Supply
TD1SR (degF)   Temp, Dry Bore1, Source Return
TD2SS (degF)   Temp, Dry Bore2, Source Supply
TD2SR (degF)   Temp, Dry Bore2, Source Return
TD3SS (degF)   Temp, Dry Bore3, Source Supply
TD3SR (degF)   Temp, Dry Bore3, Source Return
TD4SS (degF)   Temp, Dry Bore4, Source Supply
TD4SR (degF)   Temp, Dry Bore4, Source Return

DRY BORES

GROUND LOOP MONITORING SCHEMATIC

MONITORING HYDRONIC SCHEMATIC

2ND FLOOR
xLATH CEILING

1ST FLOOR
SLAB RADIANT

TLCPS

TLCPR

MF2

FLCP

V3 — 2 WAY ZONE VALVE, NORMALLY CLOSED

MF1 — SUPPLY MANIFOLD WITH AIR VENT, VISUAL
TEMPERATURE, & BALANCING VALVES
RETURN MANIFOLD WITH VISUAL FLOW

V2 — 3 WAY ZONE VALVE (→,↓)
NORMALLY OPEN TO STORAGE

TLFR

3" GREYWATER
FROM 2nd FLR

1" DOMESTIC HOT WATER

HEAT PUMP
LOAD CIRCUIT

PRESSURE RELIEF
OVERFLOW TO OUTSIDE

TLHS

TLDHX

DHX

FLDHW

FCM

KIT
MB SINK
MB SHWR
B2 SINK
B2 TUB
CW

KIT
MB SINK
MB SHWR
B2 SINK
B2 TUB
CW
MB WC
B2 WC
PWD

FRIDGE

PRESSURE
RELIEF (30 PSI)

P2   PHPS

TLSS   PHPT   TLLS

P1   PHPL

AS1

1"

ET1

1"

HP

TLSR   TLLR

ST

FLCW

TSSS

TSSR

FLHPS

1"

FLHPL

3 WAY ZONE VALVE (↵,←)
NORMALLY OPEN TO STORAGE   V4

SV2

SV4

TLCS

TLDSR

FLDSP

TLDSS

DESUPERHEATER
CIRCUIT

F

V1

1"   1-
½"

1"

VALVE FOR
COLD WATER
SHUT OFF

MANUAL VALVE & HOSE BIB FOR DRAIN
ACCESS FROM FRONT OF STORAGE

GW FILTER CLEANOUT

WASTE   WASTE

GW STORAGE MAKEUP
HOSE BIBS
IRRIGATION

TD#SS / TD#SR
TYP. OF 4 EA.
@ DRY BORES

GREYWATER TO GROUND HEAT
EXCHANGERS

MANUAL VALVES FOR
ISOLATION OF BORES
ACCESS FROM
SURFACE (TYP 8)

TW#SS / TW#SR
TYP. OF 4 EA.
@ WET BORES

TW#GS / TW#GR
TYP. OF 4 EA.
@ WET BORES

1-1/2" FIRE SPRINKLERS

(DRY) HELICAL GROUND COUPLED HEAT EXCHANGERS

GREYWATER RECOVERY GROUND COUPLED HEAT EXCHANGERS

③ MONITORING HYDRONIC SCHEMATIC
SCALE: NONE

METAL FLASHING
WITH 1/4" DRIP

4?av THICK RIGID
INSULATION

PROTECTIVE
COVERING

FINISH GRADE

TFFI

TFES
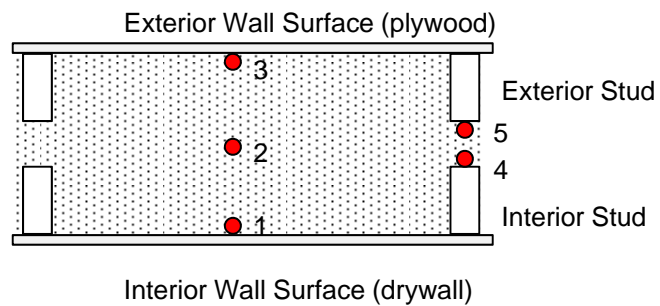
CONCRETE SLAB

TFCS

TFCF

TFEB

TFCB

TFEI

TFCI

TFFE

Wall and Ceiling Cavity Temperature Sensor Conceptual Schematic (sensors indicated by red dots)

Wall Assembly Temperature Sensors

TNW1~5: North Wall
TSW1~5: South Wall

Ceiling/Wall Radiant Panel Temp Sensors

TMW1~6: Master Bed Wall
TMC1~6: Master Bed Ceiling
TSC1~6: Study Ceiling

Exterior Wall Surface (plywood)

3

Exterior Stud

5
2
4

Interior Stud

1

Interior Wall Surface (drywall)

4

Insulation   3

Truss

6   5

Furring

2
1

Interior Ceiling
Surface (drywall)

Radiant tubing in metal channel