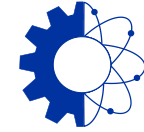


TECHNICAL GALLERIES
CONSOLIDATION

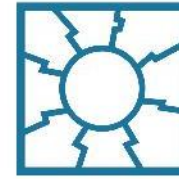


ENGINEERING
DEPARTMENT

Technical Galleries Consolidation Program – Project Status Report

Project Board #2 – 28th April 2022 – Sébastien EVRARD, Project Leader on behalf of the Project Team

Content



TECHNICAL GALLERIES
CONSOLIDATION

- **Introduction**
- **CP1-I-Gallery**
- **CP2-Engineering**
- **CP3-Integrated Safety**
- **CP4-Logistics**
- **CP5-Decabbling**



April 2022

-  28 Apr [Project Board meeting #2](#) **NEW**
-  25 Apr [Consolidation of the Technical Galleries - Project team meeting # 14](#) (protected)
-  14 Apr [Reunion integration consolidation galleries techniques #8](#)

March 2022

-  31 Mar [Reunion integration consolidation galleries techniques #7](#)
-  28 Mar [Consolidation of the Technical Galleries - Project team meeting # 13](#) (protected)
-  21 Mar [Schedule meeting #3](#)
-  17 Mar [Reunion integration consolidation galleries techniques #6](#)
-  07 Mar [Consolidation of the Technical Galleries - Project team meeting # 12](#) (protected)

February 2022

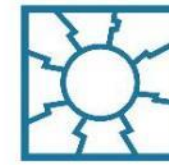
-  24 Feb [Reunion integration consolidation galleries techniques #5](#)

January 2022

-  31 Jan [Consolidation of the Technical Galleries - Project team meeting # 11](#) (protected)
-  24 Jan [Schedule meeting #2](#)
-  17 Jan [Schedule meeting #1](#)

[Technical Galleries Consolidation · Indico \(cern.ch\)](#)

CSR, Project Boards and ATSMB Roadmap

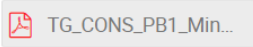
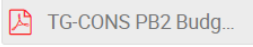
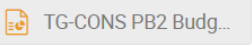


TECHNICAL GALLERIES
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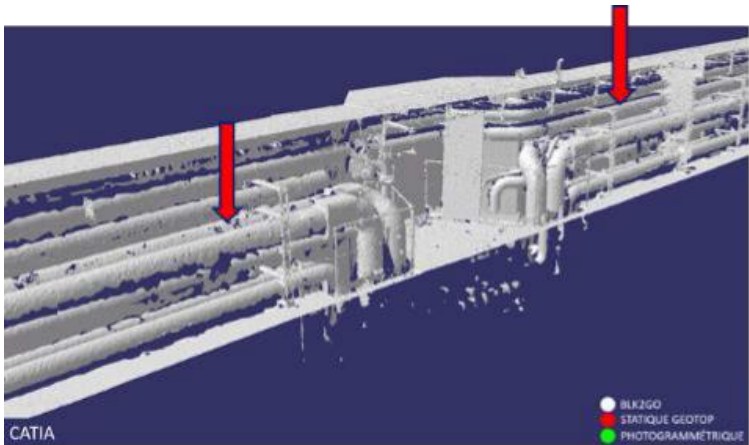


+ Presentation of The TG-CONS program at the CERN Insurance Day on May 6th, 2022

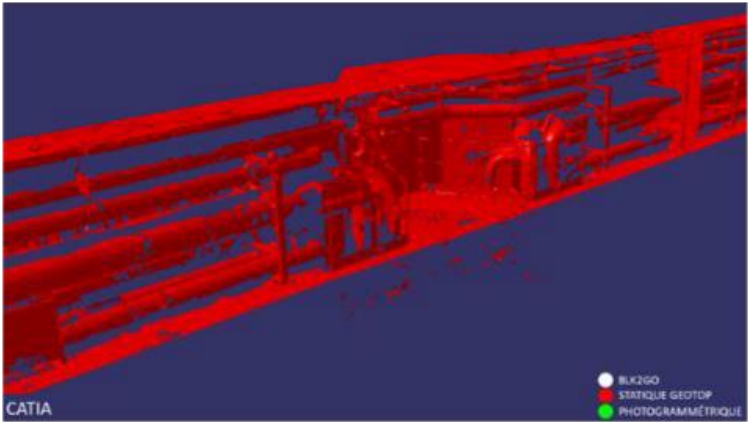
Project Board #2

Project Board meeting #2		
Thursday 28 Apr 2022, 14:00 → 15:45 Europe/Zurich		
14:00 → 14:05	Approval of the PB1 meeting minutes Speaker: Sebastien Evrard (CERN) 	5m
14:05 → 14:25	Project Status Report Speaker: Sebastien Evrard (CERN)	20m
14:25 → 14:40	Safety Studies Speaker: Adrianos Filinis (Ministere des affaires etrangeres et europeennes (FR))	15m
14:40 → 14:55	Schedule and Budget Speaker: Sebastien Evrard (CERN)  	15m
14:55 → 15:05	Follow-up of actions of the previous meeting Speaker: Adrianos Filinis (Ministere des affaires etrangeres et europeennes (FR))	10m
15:05 → 15:45	Q/A and discussion	40m

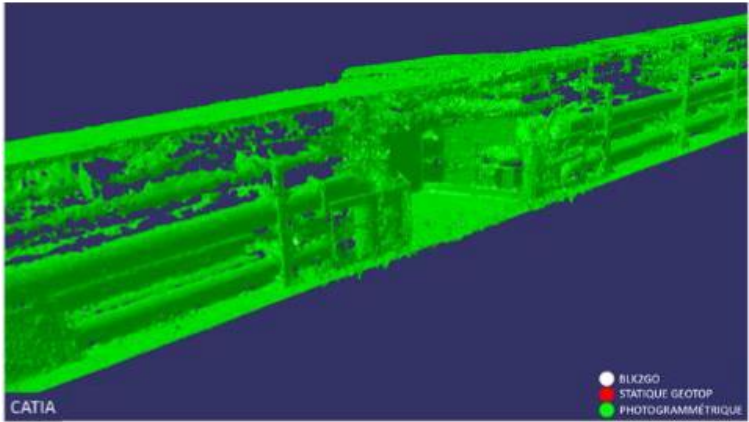
CP1-I-Gallery: Scan methods benchmarking exercise



BLK2GO



Static scanner



Photogrammetry

	BLK	Static	Photo		Weight
Time spent	4	2	5		5%
Accuracy noise	3	5	2		30%
Resolution	3	5	4		10%
Completion	4	2	4		20%
Cost	5	3	3		15%
Ability in difficult area	4	1	3		10%
Additional pictures	2	3	5		5%
Number of suppliers	2	4	1		5%

Average	3.375	3.125	3.375
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100%

Weighted mean	3.55	3.4	3.1
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Ranking	1	2	3
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Courtesy Y. Robert

- Benchmarking exercise in 818
- New survey network
- BLK2GO – Static – Photogrammetry
- Outcome: mix of static + BLK2GO
- Price enquiry on-going for 847 (1500 m) & Meyrin West Area (3000 m)
- First Deliverable by June' 22

CP1-I-Gallery: Scan Price inquiry



DO-33261/SCE - Supply of geo-referenced points clouds of the technical galleries of the CERN west area, on the French part of CERN Meyrin site

Technical Specification

Supply of geo-referenced points clouds of the technical galleries of the CERN west area, on the French part of CERN Meyrin site

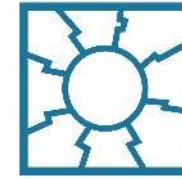
	Milestones	Weeks	Indicative Date
T_0	Notification of the Contract to the Contractor		
T_1	Delivery of the gallery 825	$T_0 + 4$	30.06.2022
	Acceptance by CERN of the above mentioned documentation	$T_1 + 2$	15.07.2022
T_2	Delivery of the other galleries		At the latest 30.09.2022
	Acceptance by CERN of the above mentioned documentation	$T_2 + 2$	15.10.2022

Abstract


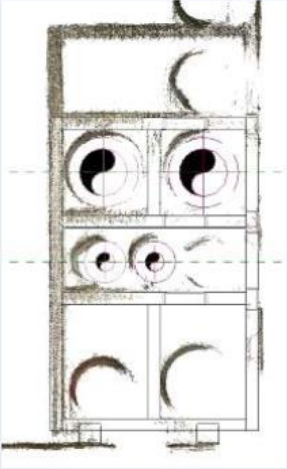
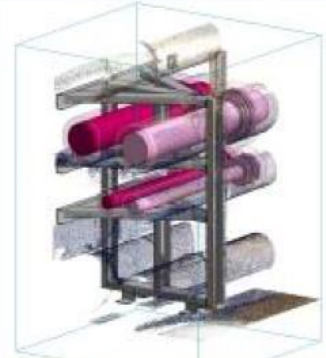
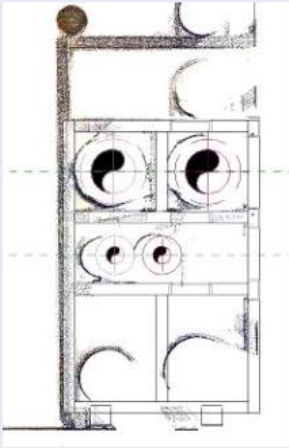
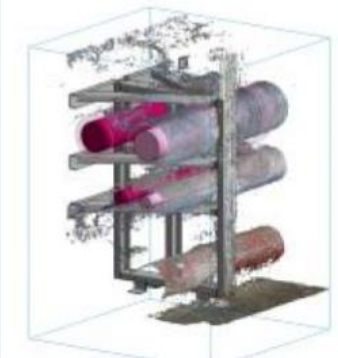
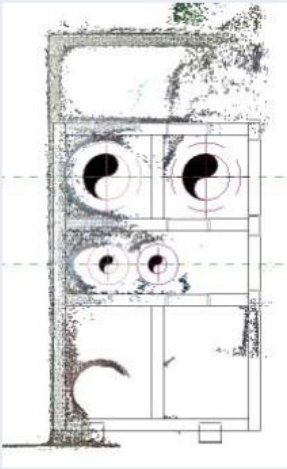
This Technical Specification concerns the supply of clouds of points of the technical galleries of the CERN west area. In order to reference these clouds in the CERN Coordinates System, a geodetic network has to be materialized and measured.

Courtesy D. Missiaen

Coordination Package 2 (CP2) - Engineering



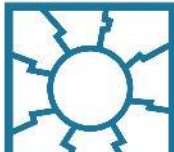
TECHNICAL GALLERIES
CONSOLIDATION

Scanner	BLK2GO	Statique Geotop/Trimble	Scan Photogrammétrique
Images	 	 	 

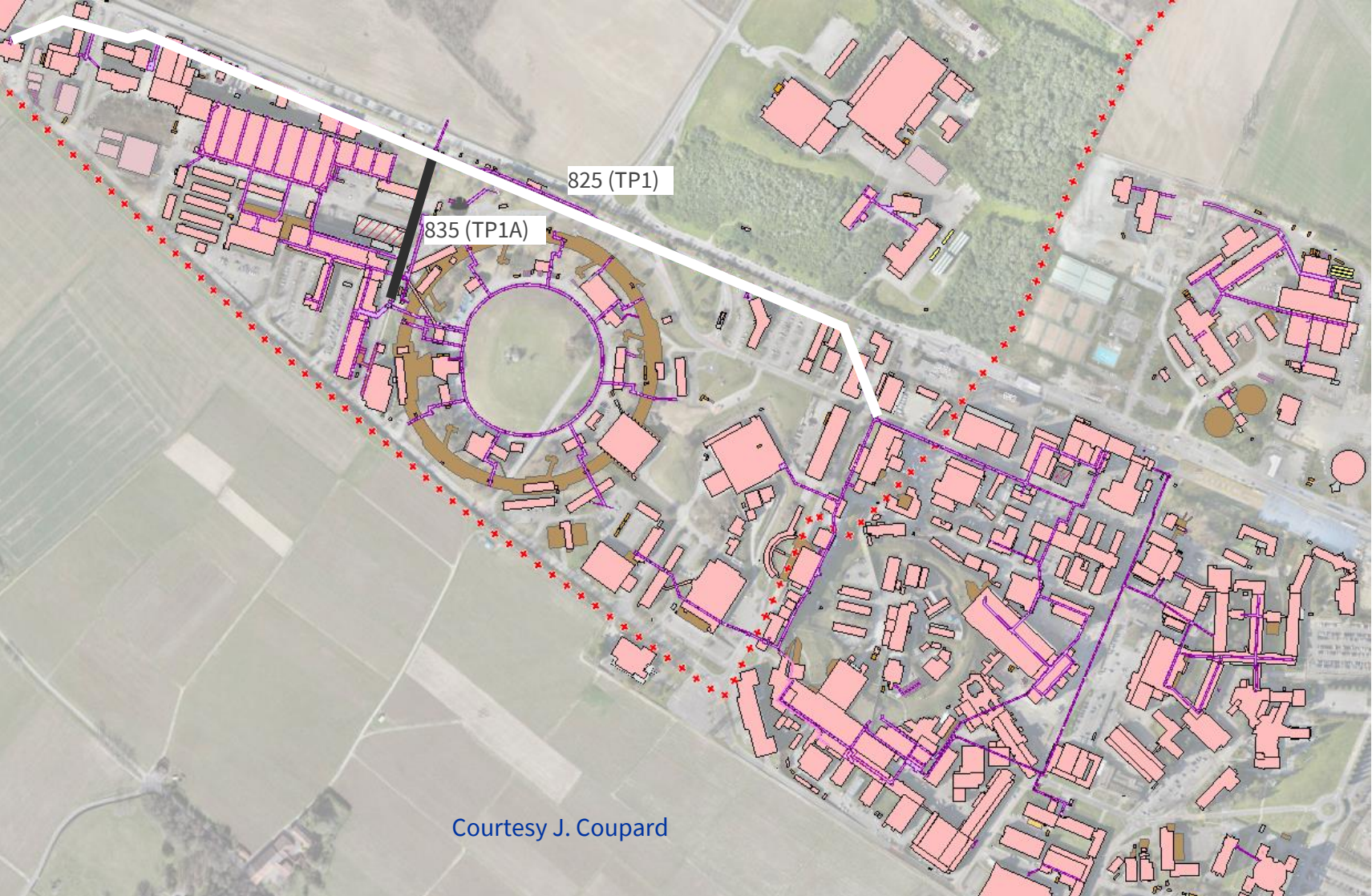
19/02/2022 28

- Design office feedbacks
 - SCE-SAM-TG
 - EN-CV-DO
 - SCE-SAM-IN
 - EN-EL-DDO
 - EN-ACE-INT
- Criteria
 - Accuracy / Alignment
 - Quality / Noise/Granularity
 - Completion
 - Other

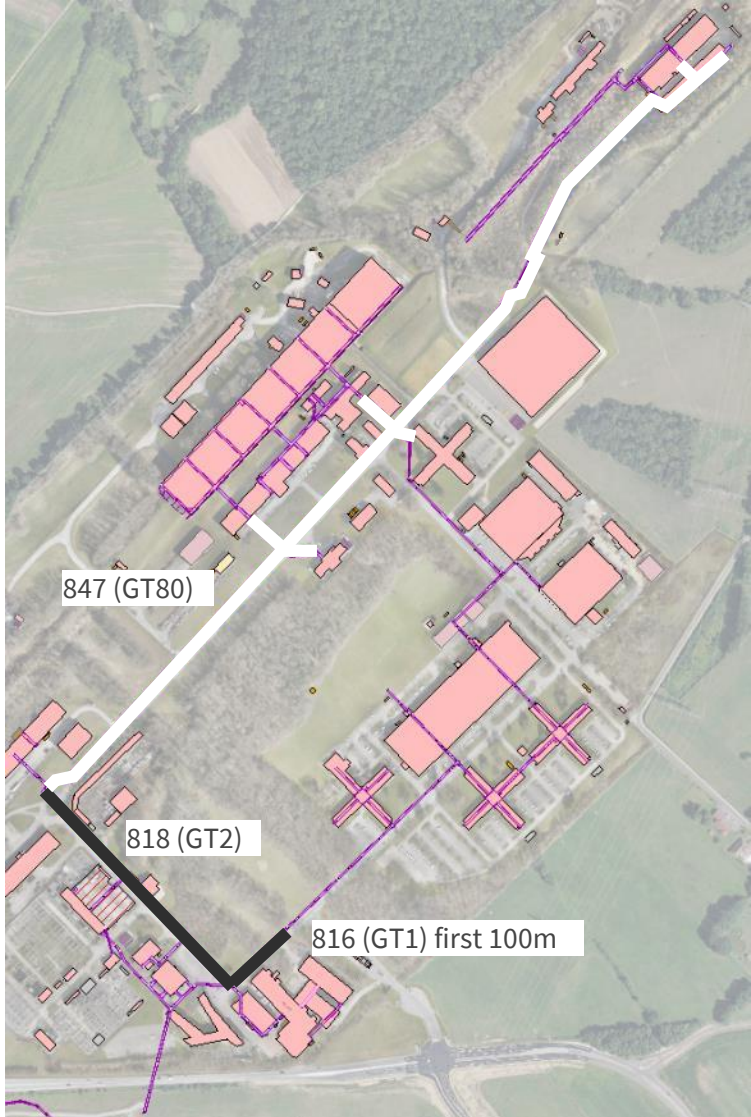
Coordination Package 2 (CP2) - Engineering



TECHNICAL GALLERIES
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Courtesy J. Coupard



Coordination Package 2 (CP2) - Engineering

Reverse Engineering

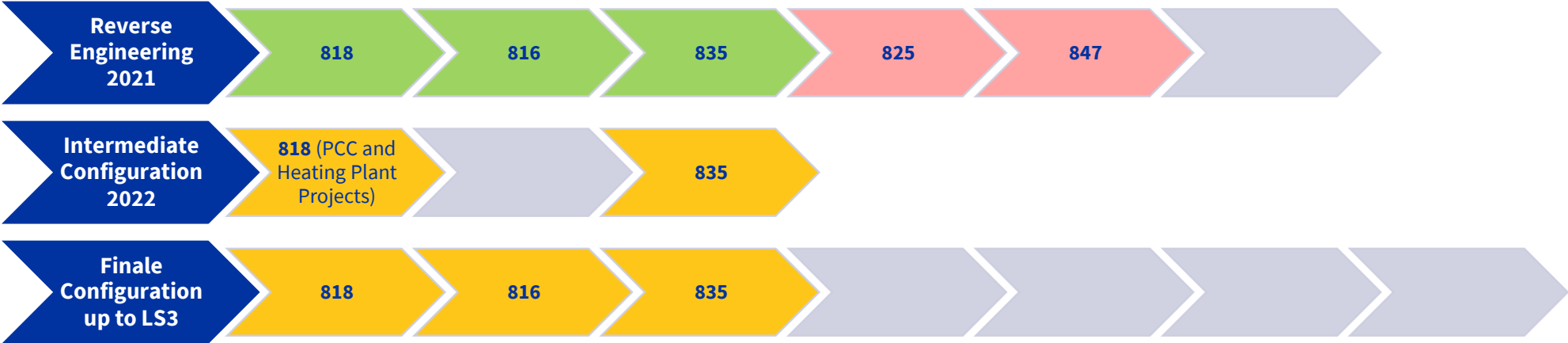
- Scanning / Meshing / Modelling

Final Configuration

- TG-CONS activities

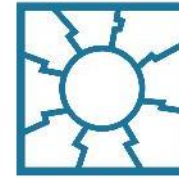
Intermediate Configuration

- Activities carried out before TG-CONS

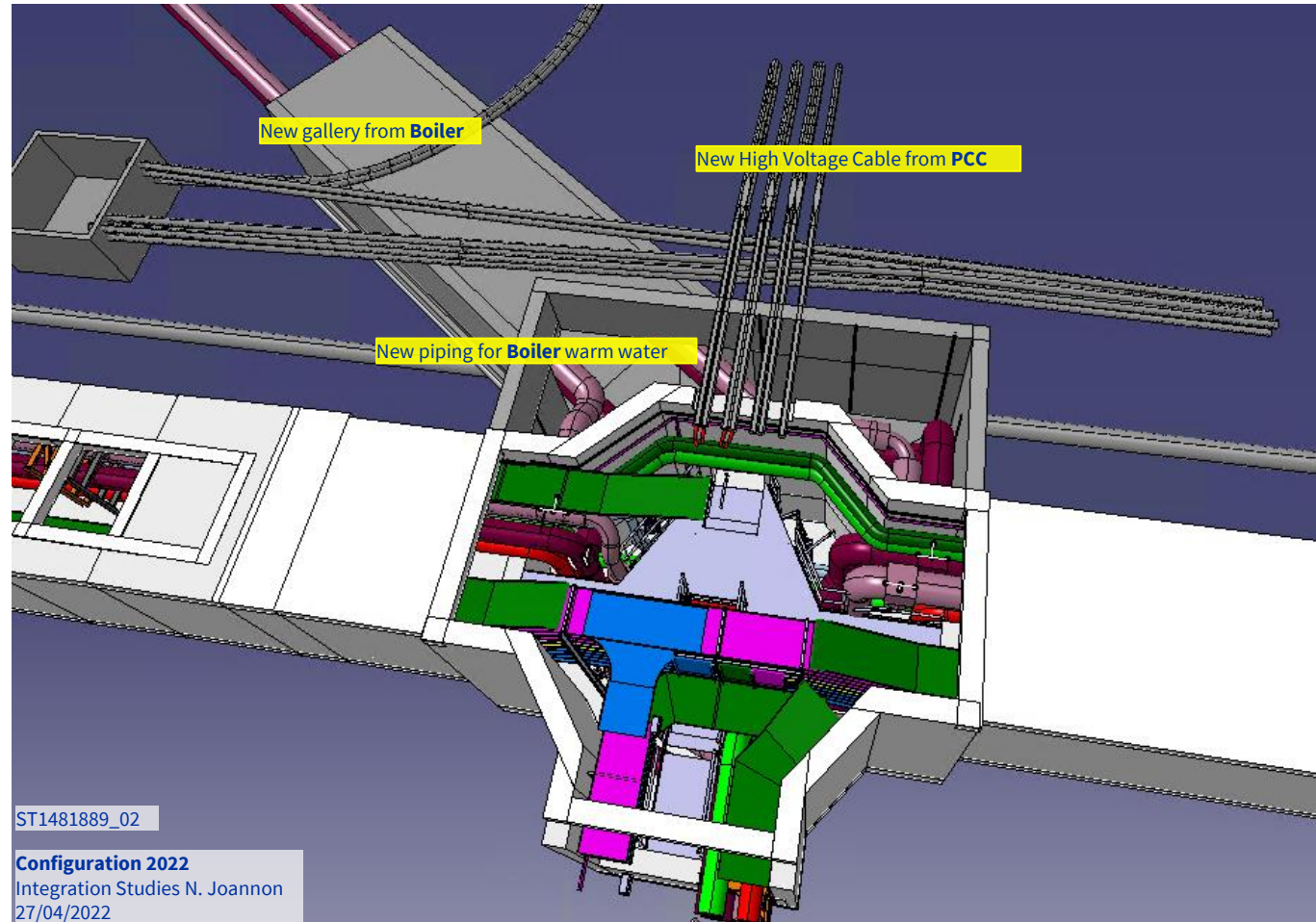


Courtesy J. Coupard

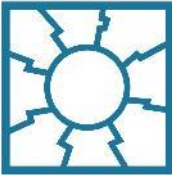
Coordination Package 2 (CP2) – Engineering Integration Studies – 818/816



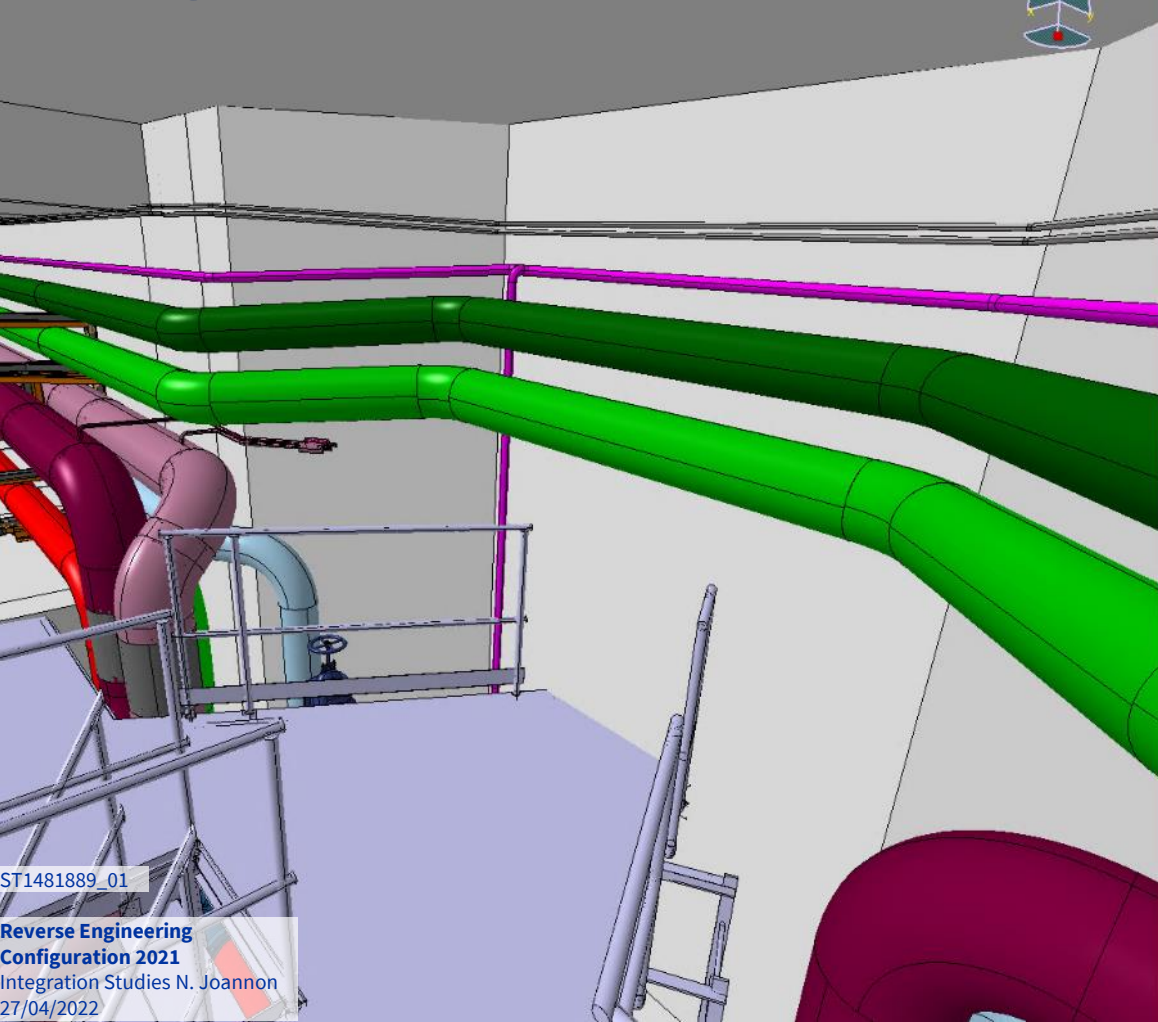
TECHNICAL GALLERIES
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Coordination Package 2 (CP2) – Engineering Integration Studies – 818/816



TECHNICAL GALLERIES
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ST1481889_01
Reverse Engineering
Configuration 2021
Integration Studies N. Joannon
27/04/2022



ST1481889_02
Configuration 2022
Integration Studies N. Joannon
27/04/2022

New Cable Trays for **Boiler** cables

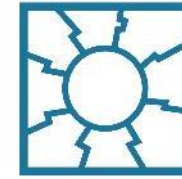
New Cable Trays for **PCC** cables

New High Voltage Cable from **PCC**

New piping for **Boiler** warm water

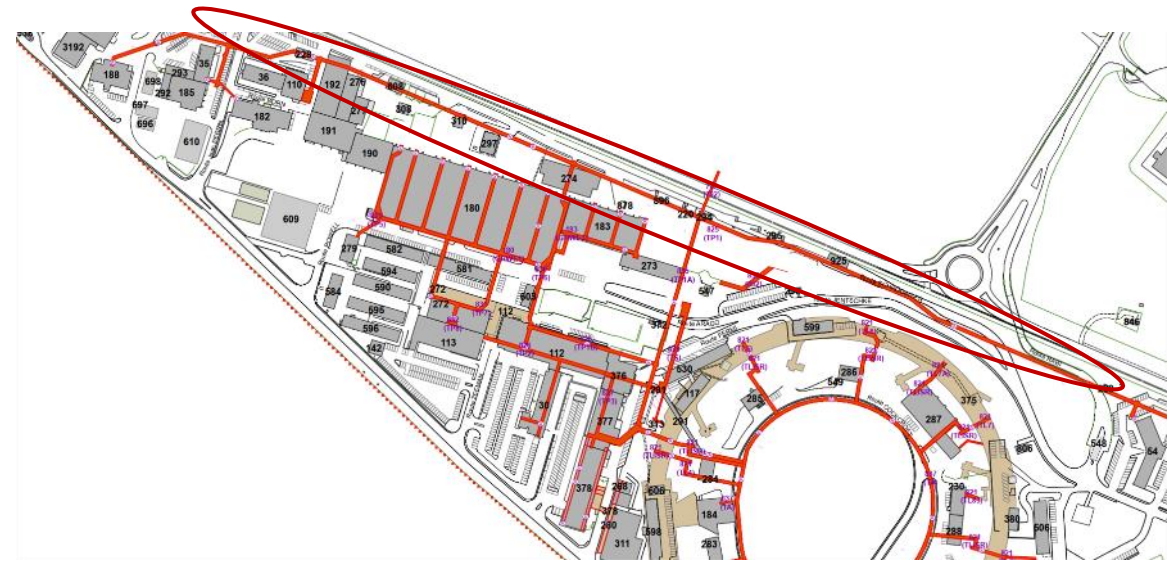
New opening for Access
(being discussed)

Coordination Package 2 (CP2) – Engineering Integration Studies – 818/816

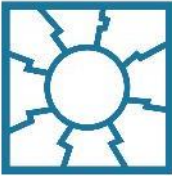


TECHNICAL GALLERIES
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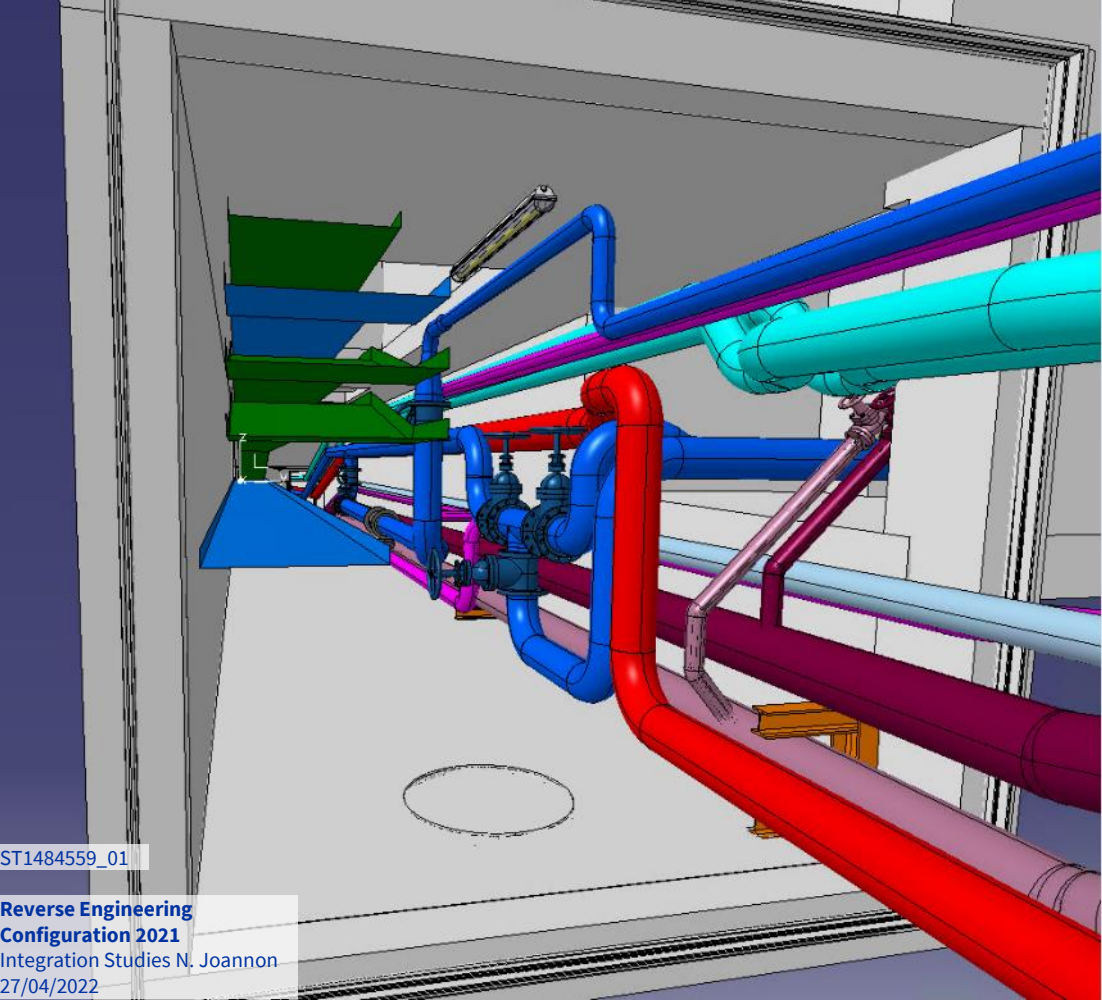
- **Pilot gallery 818: constraints to be taken into account**
 - Waiting connection chamber in October' 22
 - Waiting PCC connection in October' 22
 - Dismantling activities already completed
 - Works on water networks preferably during LS3 (mandatory for injector and machine operation)
- **Proposal to add 825 as a new pilot gallery**
 - On Meyrin site, connected to 835
 - Backbone gallery along the Route de l'Europe
 - Mainly servicing the West Area of the Meyrin site



Coordination Package 2 (CP2) – Engineering Integration Studies – 835

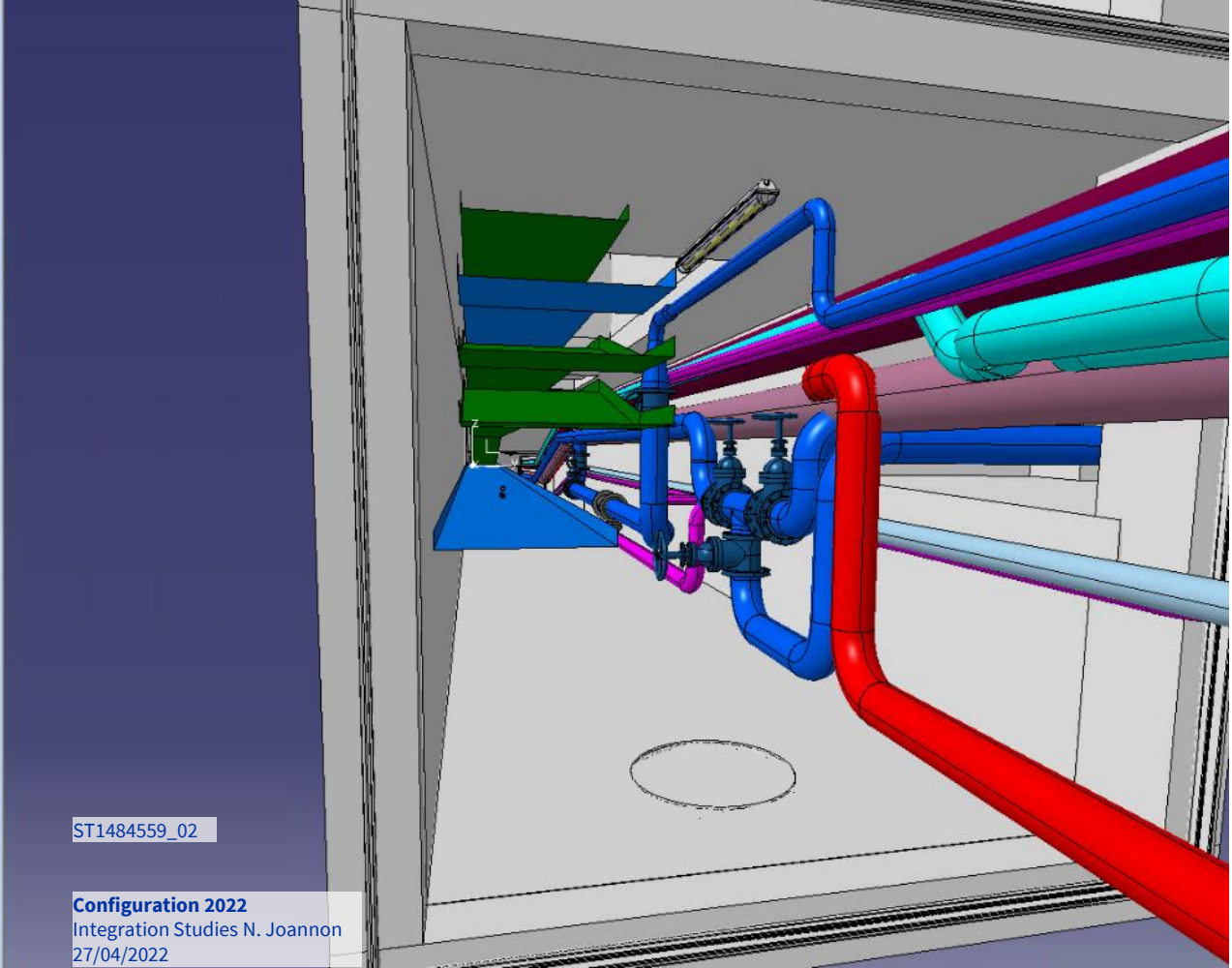


TECHNICAL GALLERIES
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ST1484559_01

Reverse Engineering
Configuration 2021
Integration Studies N. Joannon
27/04/2022



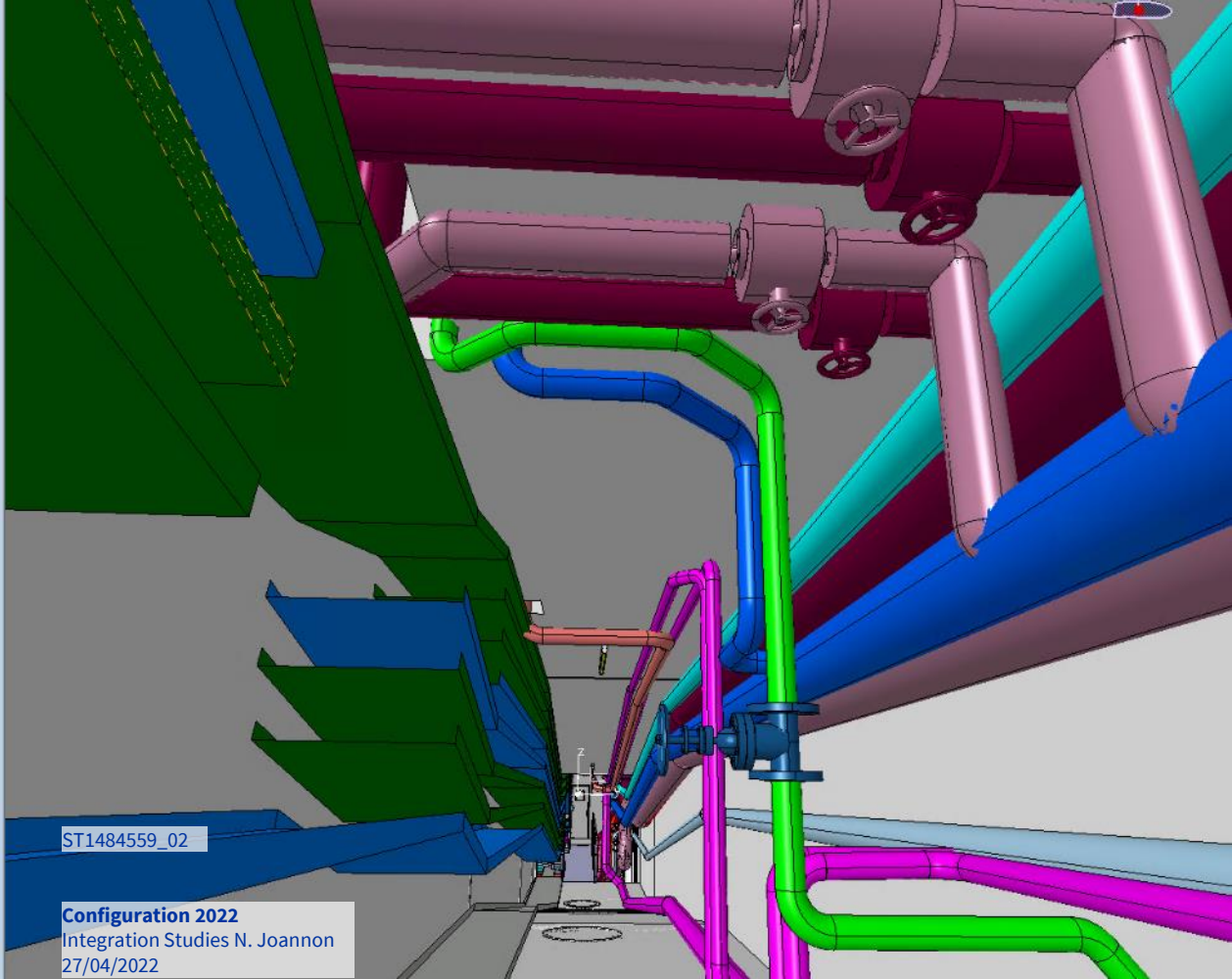
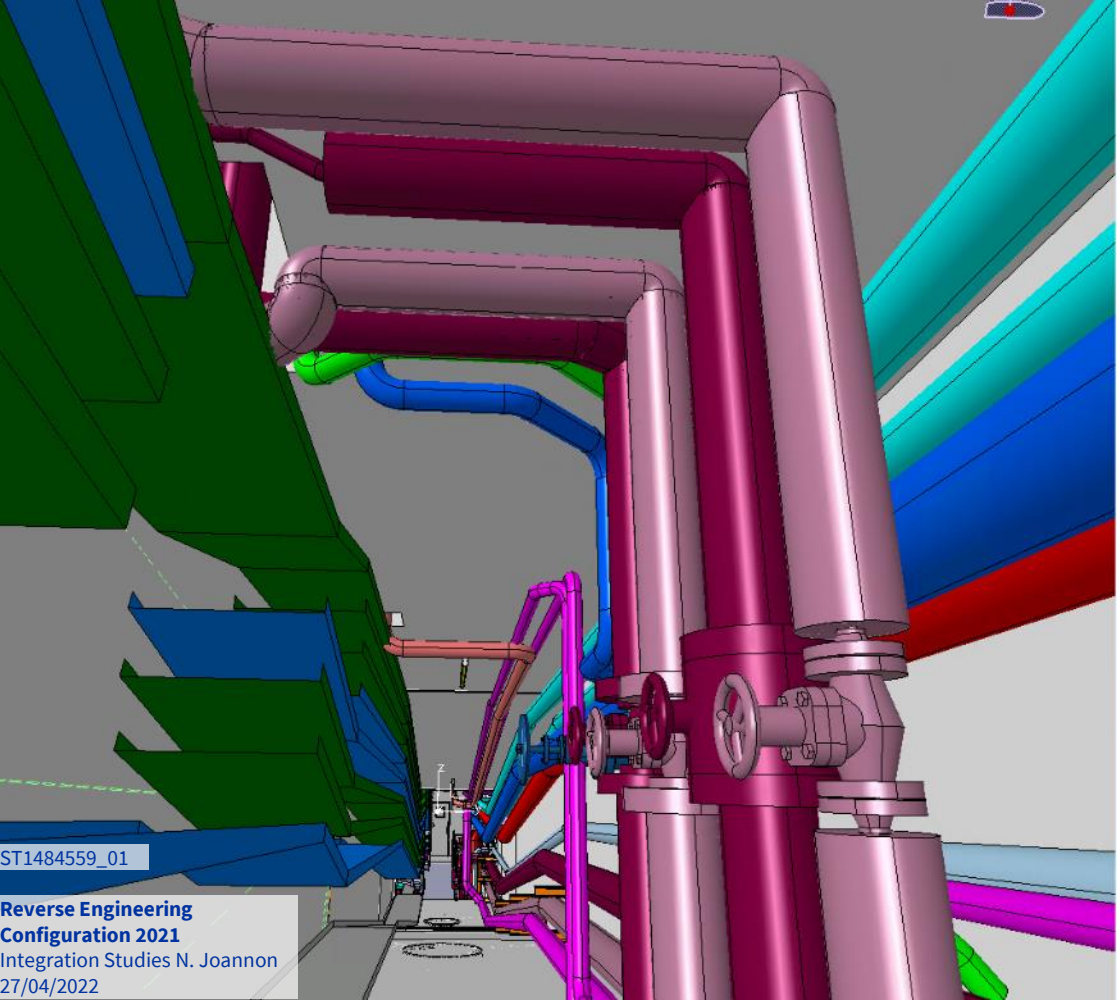
ST1484559_02

Configuration 2022
Integration Studies N. Joannon
27/04/2022

Coordination Package 2 (CP2) – Engineering Integration Studies – 835

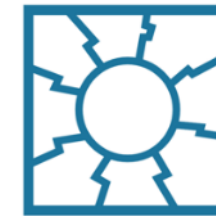


TECHNICAL GALLERIES
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Coordination Package 2 (CP2) – Engineering

Re-engineering example – under study



TECHNICAL GALLERIES
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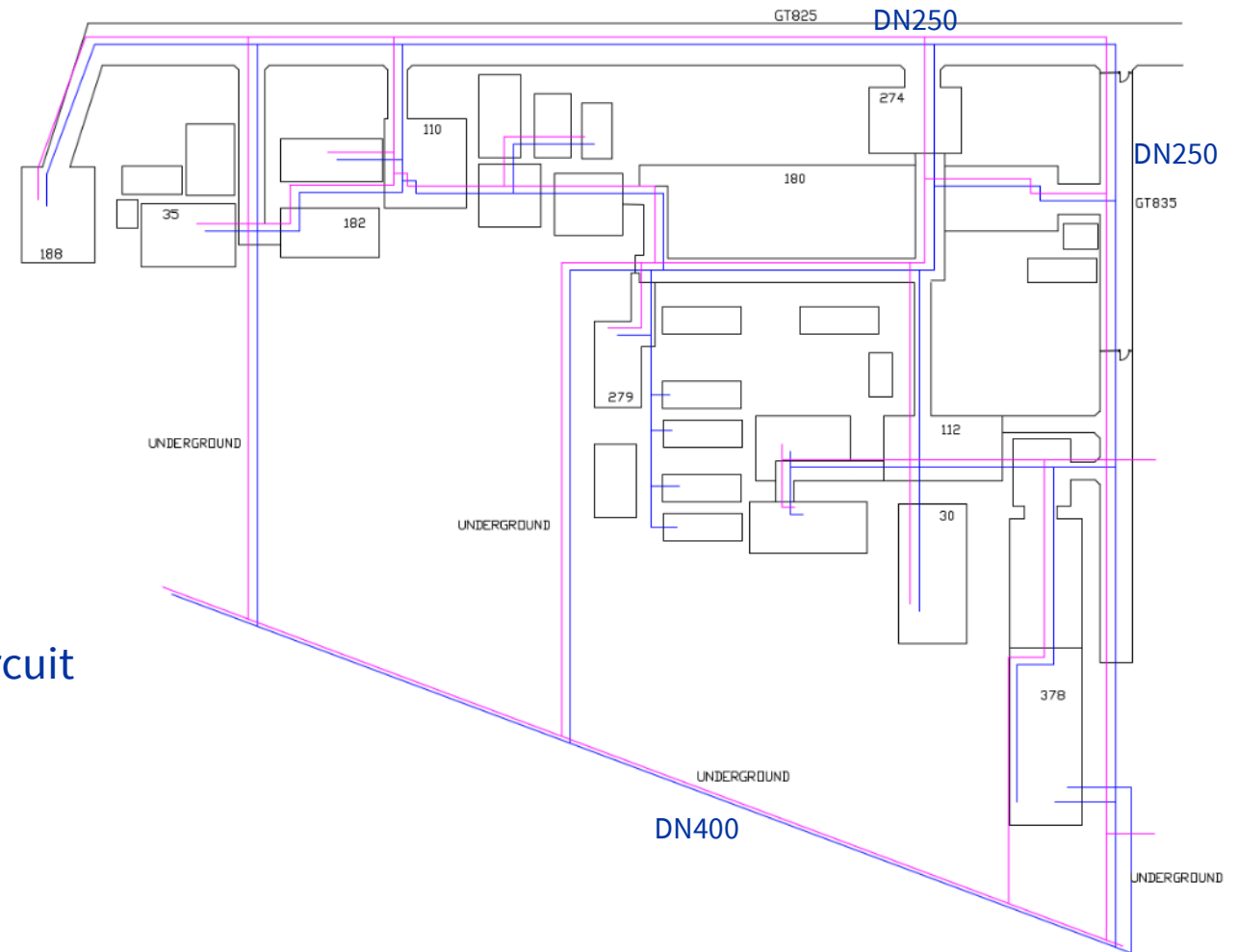
West Area Meyrin

Drinking water circuit

Fire fighting circuit

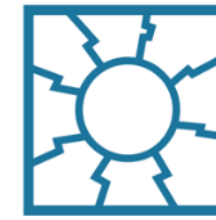
Existing situation

- 2 separate networks
- Hydrants and RIA connected to the Fire fighting circuit
- Redundancy ensured by buried water lines



Courtesy E. Amarilla

Coordination Package 2 (CP2) – Engineering Re-engineering example – under study



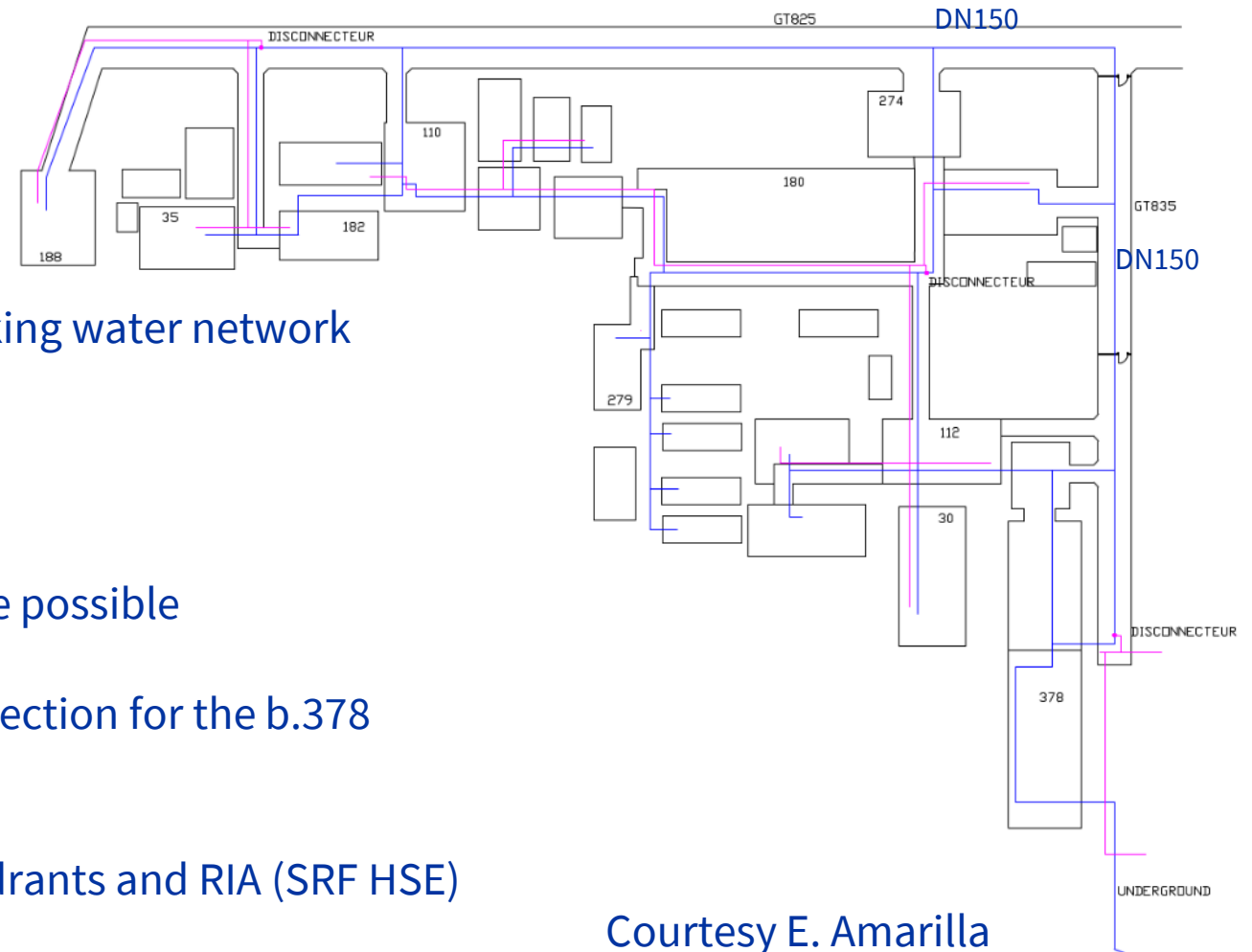
TECHNICAL GALLERIES
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Future situation (under study)

- 1 main network drinking water network
- 3 new local Fire fighting circuits supplied by the drinking water network (through disconnectors)
 - GT835
 - B.180
 - GT825
- Hydrants connected to drinking water network where possible
- RIA connected to the new 3 Fire fighting circuits
- Underground lines dismantled except for a new connection for the b.378

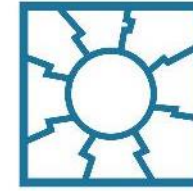
Advantages

- Less pipes, reduced pipe dimension, reduced # of hydrants and RIA (SRF HSE)
- Getting rid of buried pipes



Courtesy E. Amarilla

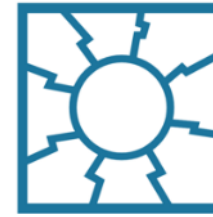
CP3-Integrated Safety



TECHNICAL GALLERIES
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- See Adrianos talk

CP4-Logistics



TECHNICAL GALLERIES
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Works in GT835

GT835

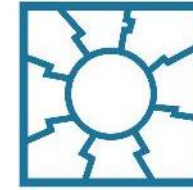
Piping configuration is different in the gallery.

New lines will follow a different passage in these two areas of the gallery



North Part

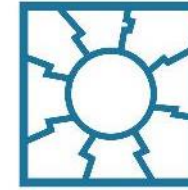
South Part



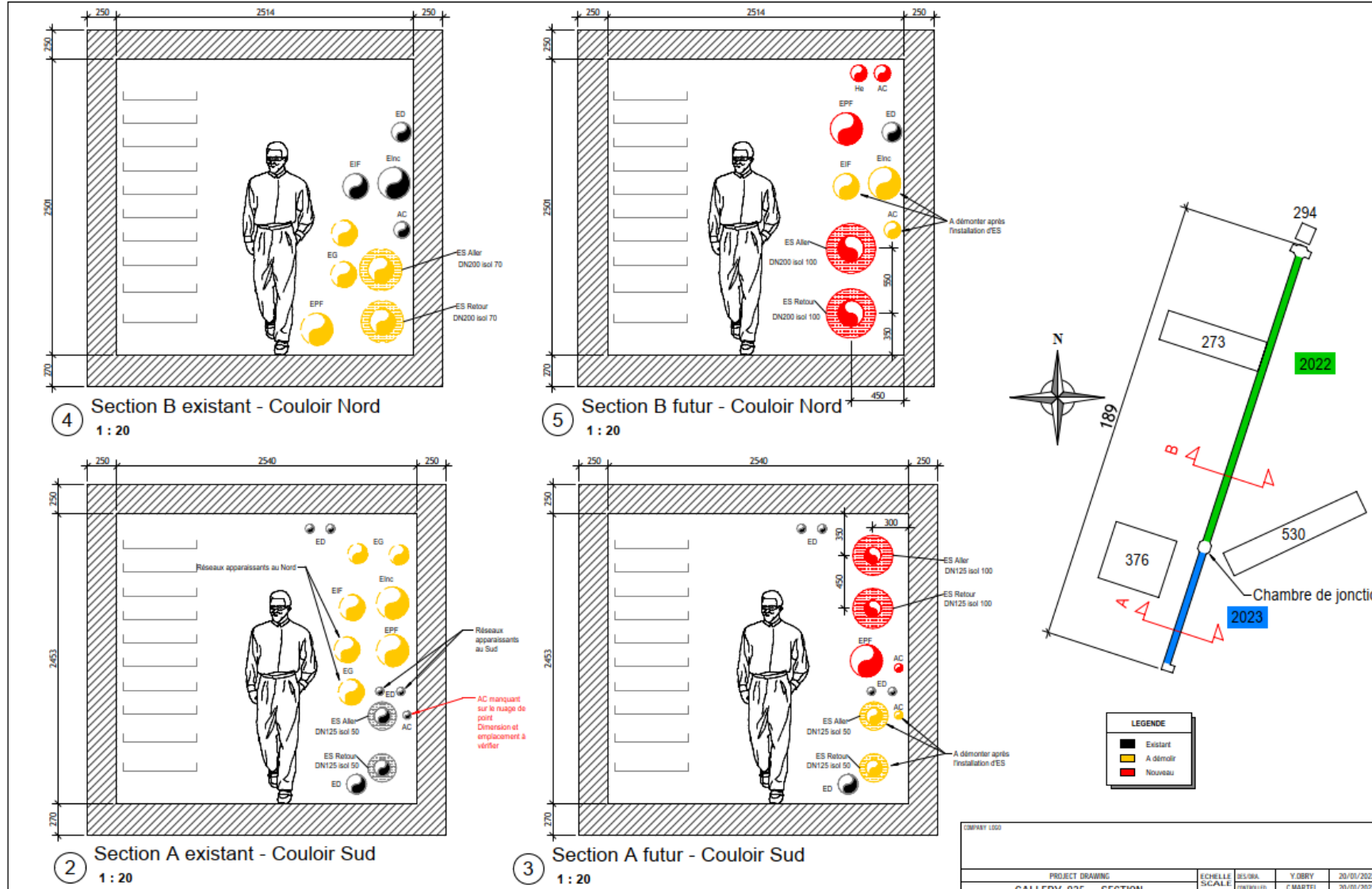
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Courtesy E. Amarilla

GT835



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Courtesy E. Amarilla

Works in GT835 – Site preparation



Courtesy E. Amarilla

Works in GT835 – Site preparation



Courtesy E. Amarilla

Works in GT835- North Part



Courtesy E. Amarilla

Works in GT835 – Scraping and Cutting



Smoke and powder issues:

Scraping only for a part of the pipe to start the cutting with the rotating machine. Afterwards saber-saw

Dismantling issues:

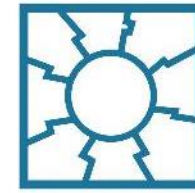
Use of a “table” to be able to cut and move the pipe up to the front.



180 m DN250 (EP)
80 m DN65 (EG)

Courtesy E. Amarilla

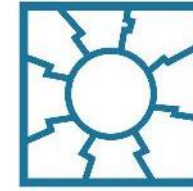
Works in GT835 – Evacuation & Waste



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Works in GT835 – Installation AC & He (2 DN100 pipes)



TECHNICAL GALLERIES
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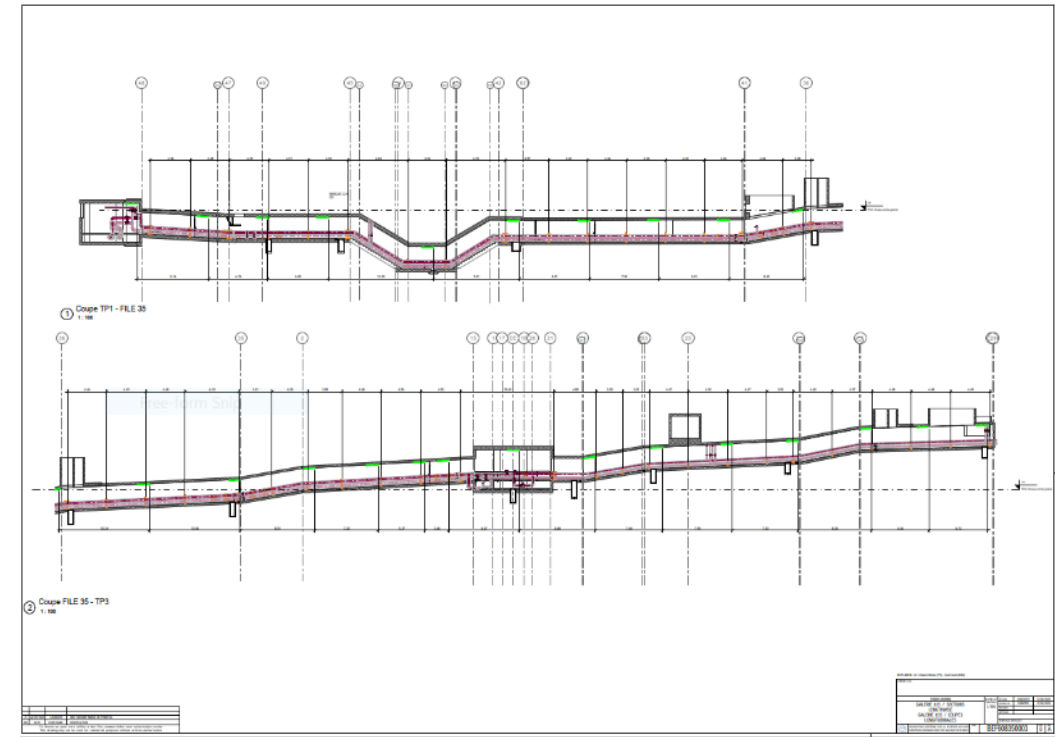
GT835 – Superheated water

Existing installation:

- Modeling work and scan: 100%
- CATIA: ST1496090 - GT835 - Tertiary CV – Survey

Project installation:

- Studies finalized in the North side, waiting for EN-CV models in order to finalize south side.
- CATIA: ST1557046 -GT835 - Tertiary CV - Survey - Project model



Works:

EGTIM INDUSTRIE – OSVC 9187747 -S256-0166

Réseau Eau chaude (SCE) GT835n

VIC and works preparation.

Execution folder under completion.

Start of works – 13.05.2022

Courtesy C. Martel

<i>North side</i>	2022
Re-engineering studies	Done
VIC	3/5/2022
Consignation	10-13/05/2022
Thermal insulation and asbestos removal	11-16/05/2022 to 29/05/2022
Pipe dismantling and installation	18/05/2022 to 23/09/2022
Pressure test	Week 37
Commissioning	Week 38
South side including 112 junction chamber	TBC
Waiting for CV models and integration	



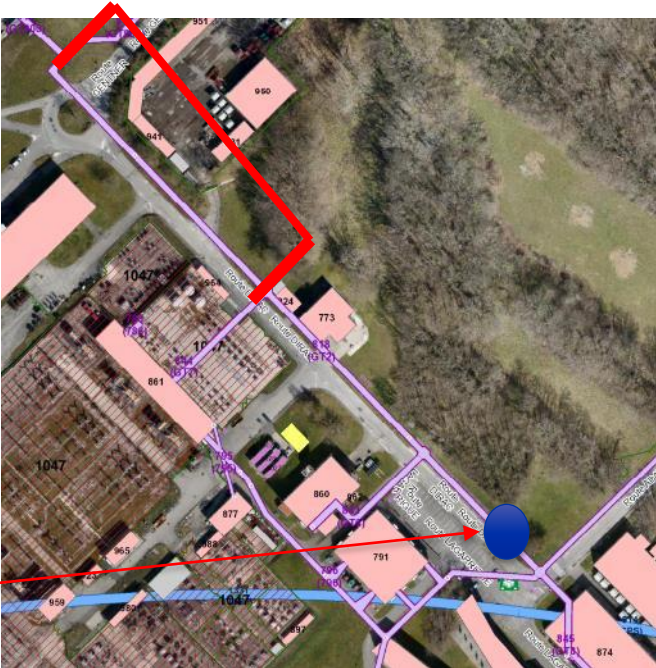
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Works in GT818 and GT 825

Dismantling works in GT818

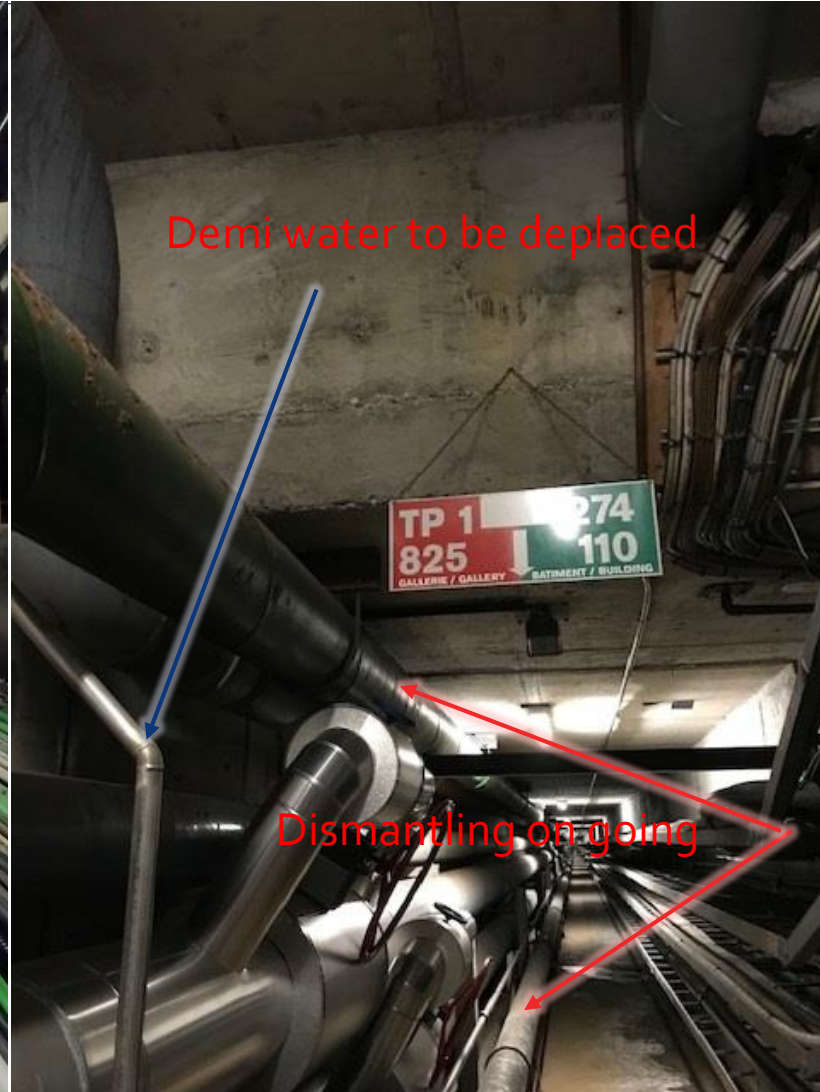
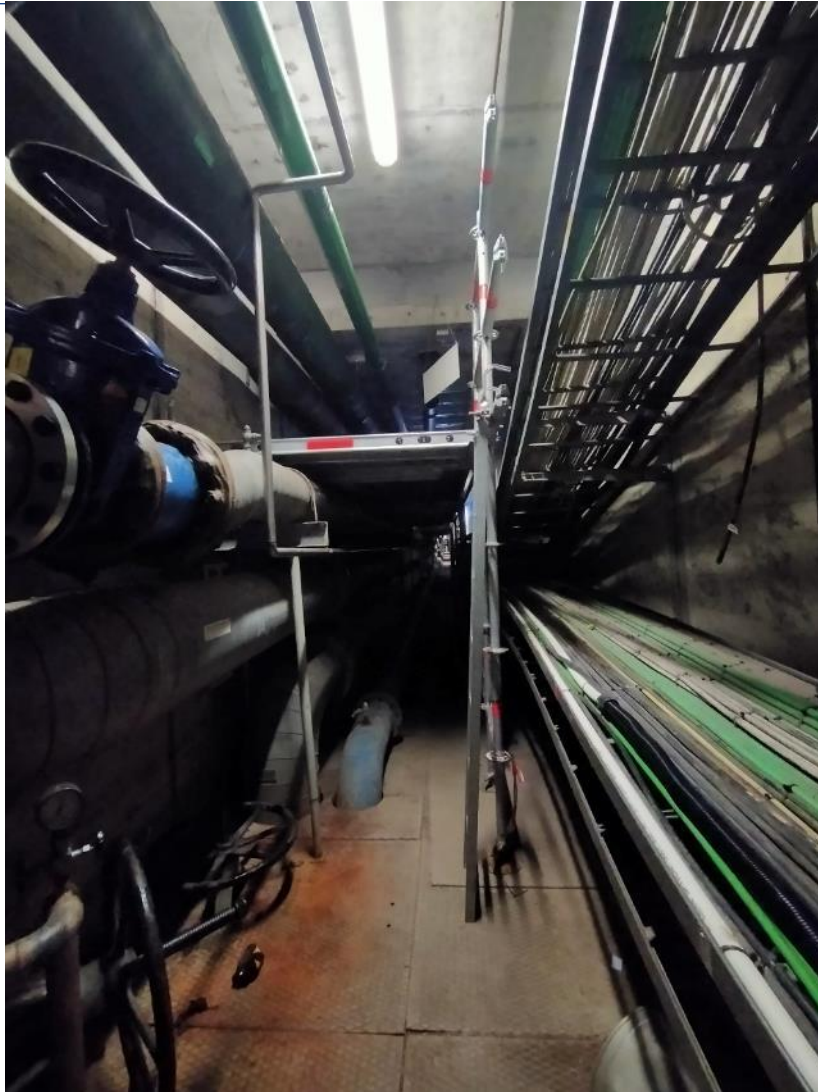


Start: 7th march
Duration: 6 weeks foreseen.
Done in 4 weeks
260m DN250 EP
280 m DN65 EP + EG



Access trap used for material evacuation

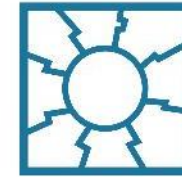
Dismantling in GT825: between GT835 and b274



CP5-Decabbling

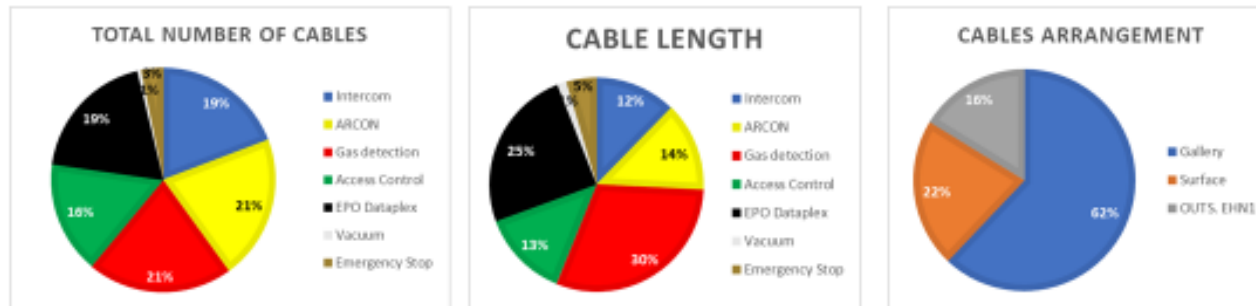


NA-CONS decabbling campaign



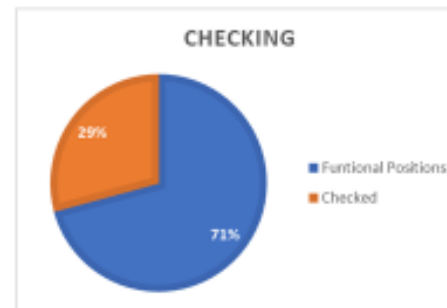
TECHNICAL GALLERIES
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DEC statistics



Total number of cables of about 800 cables with a total length of about 70 km, **75%, 53 km from technical galleries and 25%, 17 km from EHN1 surface have been removed**

N°	CC	Responsible	Group	System	Cables	Length [m]	Functional Positions	Checked	Found	Not Found	Percentage
1		Mickaël Azevedo	BE/CEM	Intercom	110	7.066	220	73	57	14	92,27%
2		Guillaume Michet	HSE/RP	ARCON	119	7.735	238	15	13	2	8%
3		Nicolas Broca	EN/AA	Gas detection	120	17.400	240	0	0	0	0%
4		Didier Vaxelaire	EN/AA	Access	93	7.616	186	33	32	1	18%
5		Yves Gaillard	SY/EPC	EPO Dataplex	109	14.120	218	209	192	17	95,87%
6		Abel Gutierrez	TE/VSC	Vacuum	3	799	6	6	6	0	100%
7		Marcin Szewczyk	EN/EL	Emergency Stop	18	2.636	36	0	0	0	0%
				Total	572	57.372					



Francesco Devito

- GHN11: 27 cables
- GHN12: 42 cables
- GHN13: 35 cables
- GHN14: 37 cables
- GHN15: 36 cables
- GHN16: 34 cables
- GHN17: 36 cables



24.11.2021

North Area – Decabbling Working Group #04

19

Courtesy M. Jeckel



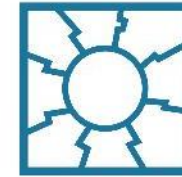
4/28/2022

TG-CONS - Project Board #2

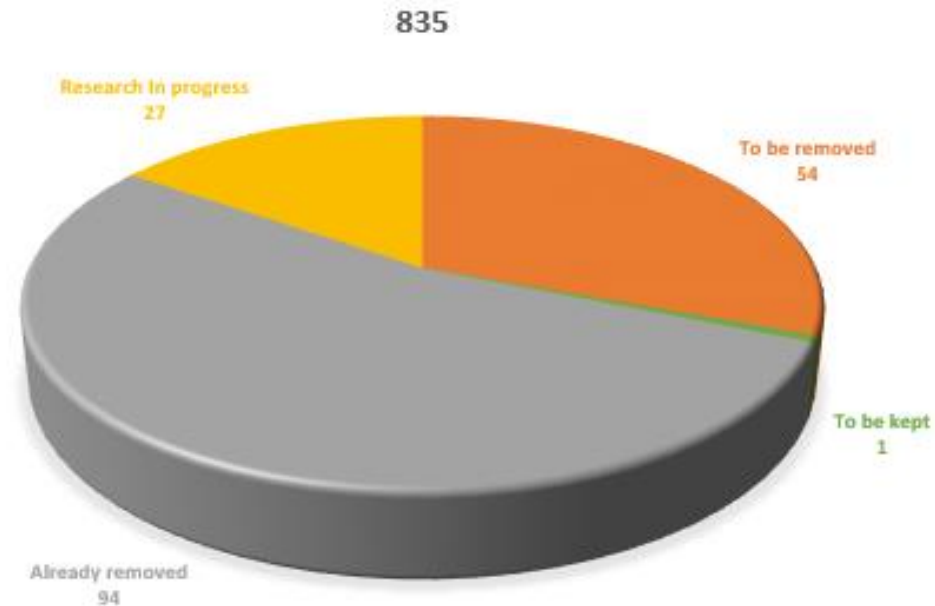
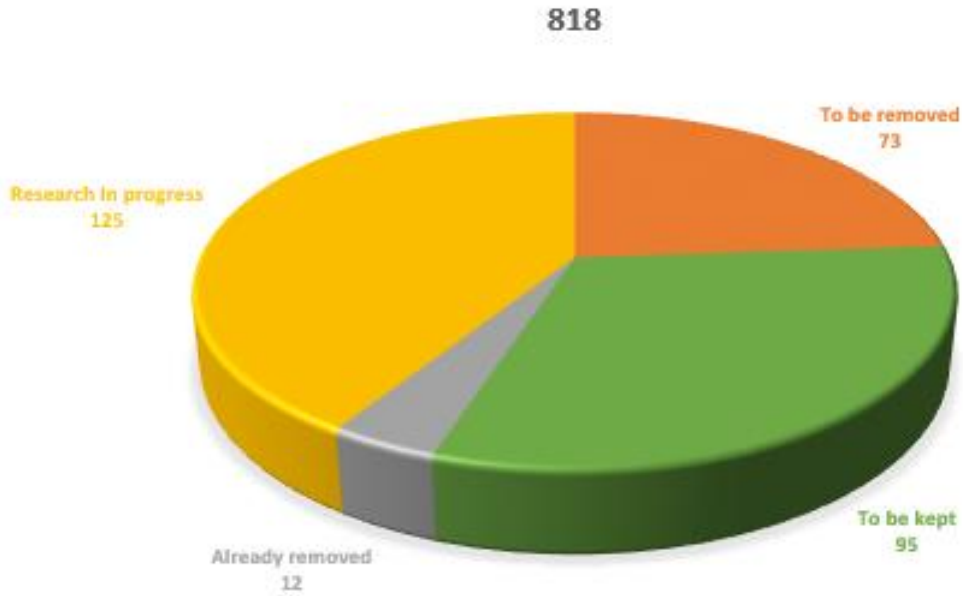
33



Decabling current situation in 818 and 835



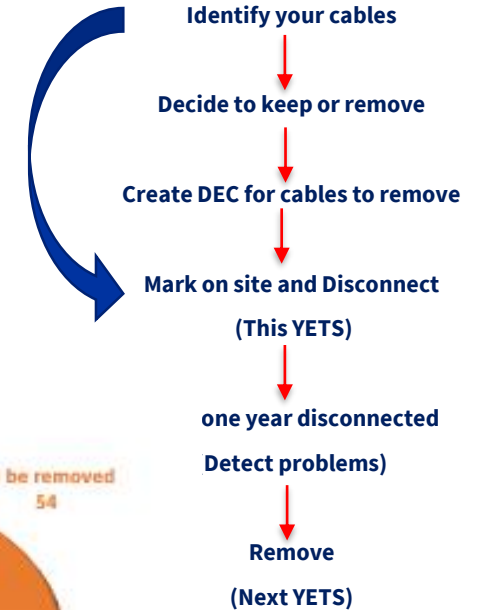
TECHNICAL GALLERIES
CONSOLIDATION

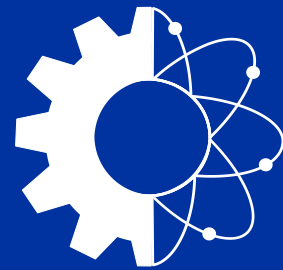


EN-EL global survey completed in both pilot galleries as well as in 847. Currently being carried out in 825.

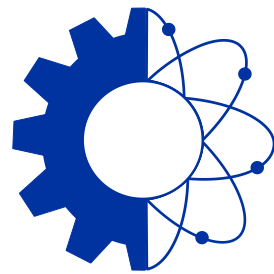
Courtesy A. Alonso

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